aquaticsBoard 7

Aquatics Multi-Sport Scoreboard Software

User Guide



Contents

1. Introduction
- Installation and Activation
- How This Guide Is Organised
- Pro and Lite Editions

2. Quick Start

3. The Main Window
- Tabs and Side Strips
- On-Air Rows and Bottom Bar
- The Four Outputs
- Keys and Sounds in the Main Window

4. Starting a Match
- New Match
- Choosing the Sport and Discipline
- Time Settings
- Undo
- Restoring a Match after a Crash

5. The Info Page
- The Rows of the Info Page
- The Player List (▾)
- Score Type, Card and Sanction Lists
- The Info Page of Each Sport
- Info Screens on the Standard Board
- Broadcast Graphics on the CK Output

6. The Screens Page
- Screen Buttons
- The Screens Page of Each Sport

7. Teams and Players
- Event and Teams
- Teams in the Different Kinds of Sport
- The Teams Page of Each Sport
- Player Photos and Numbers

8. Outputs
- The Output Rows
- Choosing a Design
- Background Video and Picture
- NDI

9. Sending the Board to the LED Screen
- How Windows Sees the Outputs
- Second Monitor, Projector or TV
- LED Video Processor (Scaler)
- LED Sender Card (Direct Connection)
- Several Outputs
- Pixels, Monitors and Window Scaling
- A One-Time Setting

Troubleshooting the LED Output

10. Media Player

The Media Player Page
While a Clip Plays
Display Modes
Playlists 7 to 20
Web Pages and Streams (URL)
Media Player from the Remote Control and the Keyboard

11. Video Sources

Camera
NDI Source
Screen Capture

12. Sp / Ad Media

Strip Modes and Fields
Sponsor Strip (Sp)
The Sp Strip on the Board
Ad Layout
How the Ad Board Is Sliced
Banner 1 and Banner 2
Main Area (Ad)
Removing Pictures

13. Board Designs

Preview Design (Design Gallery)
The Design Editor

14. Settings

The Settings Page
Choosing the Language
Restart for the New Language

15. Keyboard Shortcuts

The Shortcut Editor
Default Keys
The Actions of Each Sport

16. Remote Control

Connecting a Phone or Tablet
Signing In
The Remote Panel
Running Penalties on the Remote
Input and Confirmation Sheets

17. Data Exchange

18. Connecting a Scoreboard Console or Timing System

Console Types in aquaticsBoard 7
Compatible with Daktronics All Sport 5000
Who Controls What
The Console Indicator
When the Console Runs Another Sport
When the Console Data Stop
The Data Monitor (for Installers)
Troubleshooting the Console Input

Compatible with Colorado Time Systems (System 5 / 6, Gen7)
Compatible with Daktronics OmniSport 2000
Compatible with Omega / Swiss Timing (ARES 21, Quantum)
Compatible with Kazo Vision Ultra Score (Data Out)
Recording a Data Log for Support
Other Consoles

19. Typical Workflows

20. Swimming
Choosing the Pool
The Race Desk
The Lane Menu
Lane Time and Hand Timing Dialogs
The Life of a Heat
Timing
Officials' Phones and PINs
Meet Data, Info and Screens Pages
Lenex and the Meet Managers
Troubleshooting the Meet Manager Files
Time Settings
Keyboard Shortcuts
The Swimming Boards
Remote Control (Swimming)
Swimming Scenarios

21. Diving
Choosing the Event
The Dive Desk
Scoring a Dive
Diving Dialogs
Officials' Phones and PINs
Event Data, Info and Screens Pages
Time Settings
Keyboard Shortcuts
The Diving Boards
Remote Control (Diving)
Diving Scenarios

22. Water Polo
The Water Polo Panel
Players and the Number Box
Set Clock
Time Settings
The Info Page of Water Polo
Keyboard Shortcuts
The Water Polo Boards
Remote Control (Water Polo)
Water Polo Scenarios

23. Canoe Polo
The Canoe Polo Panel
Players and the Number Box
Set Clock
Time Settings

The Info Page of Canoe Polo
Keyboard Shortcuts
The Canoe Polo Boards
Remote Control (Canoe Polo)
Canoe Polo Scenarios

24. Underwater Rugby

The Underwater Rugby Panel
Players and the Number Box
Set Clock
Time Settings
The Info Page of Underwater Rugby
Keyboard Shortcuts
The Underwater Rugby Boards
Remote Control (Underwater Rugby)
Underwater Rugby Scenarios

25. Underwater Hockey

The Underwater Hockey Panel
Players and the Number Box
Set Clock
Time Settings
The Info Page of Underwater Hockey
Keyboard Shortcuts
The Underwater Hockey Boards
Remote Control (Underwater Hockey)
Underwater Hockey Scenarios

26. Usage Scenarios

27. Aquatics Quick Reference

28. Troubleshooting

29. Files and Folders

1 Introduction

aquaticsBoard 7 is the scoreboard software for swimming pools and aquatic centres. One program runs every sport of the pool — races, judged diving and the ball games in the water — and drives the scoreboard, a sponsor board, an advert board and a broadcast overlay at the same time.

Sport	Panel	Presets
Swimming	race desk: program, heats, lanes, hand timing, referee approval	50 m / 25 m pools with 6, 8 or 10 lanes
Diving	dive desk: running order, dive sheet, judges' awards, penalties, standings	World Aquatics individual and synchronised, junior, high school and college events
Water Polo	game panel: clock, shot clock 28/18, exclusions, fouls, timeouts	Water Polo
Canoe Polo	game panel: shot clock 60, suspensions and cards, golden goal	Canoe Polo
Underwater Rugby	game panel: penalties, expulsions, timeouts per half	Underwater Rugby
Underwater Hockey	game panel: running clock, 1/2/5-minute penalties	Underwater Hockey

The boards are web pages: **St** (the main scoreboard), **Sp** (scoreboard with sponsors), **Ad** (scoreboard beside an advert or video) and **CK** (an overlay on a green key colour for video mixers). Each can be shown in its own window on any screen or sent over NDI; see *Outputs*. Swimming and diving each have their own desk and their own remote view on phones and tablets; the four ball games share the game panel and the team remote.

Requirement	
Windows	Windows 10 or 11 (64-bit recommended)
.NET Framework	4.8 (part of current Windows; setup offers the download page if it is missing)
Microsoft Edge WebView2 Runtime	needed for the boards (setup offers the download page if it is missing)
Screen	1920 × 1080 for the boards; the control window works from about 1366 × 768

Installation and Activation

1. Run the setup program. It installs aquaticsBoard 7 into its own folder and places a shortcut on the desktop.
2. If .NET Framework 4.8 or the WebView2 Runtime is missing, setup tells you and offers to open the download page.
3. Start aquaticsBoard 7. It is activated with the licence you received after purchase, as described in the delivery e-mail.

> **Note** Your settings, team lists, competitions and designs are kept in the *data* folder of the program, so an update installed over the old version keeps them (see *Files and Folders*).

How This Guide Is Organised

- **Quick Start** – the first event in ten steps.
- **The Main Window** to **Typical Workflows** – the parts all sports share: window, outputs, Info, Screens, Teams, Outputs, designs, settings, keys, remote control, data exchange.
- **Swimming**, **Diving**, **Water Polo**, **Canoe Polo**, **Underwater Rugby**, **Underwater Hockey** – one chapter per sport: rules, the panel with every button, its menus and dialogs, every output screen, the remote view and scenarios.
- **Usage Scenarios** and **Aquatics Quick Reference** – complete workflows and a one-page lookup, followed by Troubleshooting and Files and Folders.

Pro and Lite Editions

aquaticsBoard 7 is the **Pro** edition. A **Lite** edition, aquaticsBoard 7 L, has the same sports and operation for one LED board. This guide describes aquaticsBoard 7.

	aquaticsBoard 7 (Pro)	aquaticsBoard 7 L (Lite)
Sports, rule presets, control panels, Undo, crash restore	all	the same
Board outputs	St, Sp, Ad and CK – four windows on any monitors	St – one window
Info page, Screens page, team lists and photos	St and CK graphics	St graphics
Media Player	20 playlists and the URL list	one playlist and the URL list
Sp / Ad Media (sponsor strip, Ad slicing, banners)	yes	–
NDI output, Video Sources (camera, NDI receive, screen capture)	yes	–
Board designs: gallery and editor	all outputs	the St screens
Remote control, officials' phones, console link, UDP broadcast, keyboard shortcuts, 46 languages	yes	yes
Program folder	C:\aquaticsBoard7	C:\aquaticsBoard7L
Licence	licence of aquaticsBoard 7	licence of aquaticsBoard 7 L (the licences of the two editions are not interchangeable)

2 Quick Start

1. Start aquaticsBoard 7. It opens with the sport you used last.
2. Click the sport button in the bottom row of the Game page (e.g. *Swimming · 50 m Pool (LCM), 8 Lanes* ▾) and choose the sport and discipline (see *Choosing the Sport and Discipline*).
3. Team sports: enter the teams and players on the Teams page (or type the names straight into the panel). Swimming and diving: check meet name and venue on the Teams page and click **Save Competition**.
4. Open the outputs with **St**, **Sp**, **Ad** or **CK** on the left rail and place them on the scoreboard screen or the video mixer (see *Outputs*).
5. Put the board on **Intro** before the start (on-air row under the panel), then back on **Game** (Live Board on the desks).
6. Run the event from the Game page: Start / Split / Finish / Approve for a heat, the keypad and Publish for a dive, the clock and the ↑ buttons for a match.
7. Optional: turn on the remote control and work from a phone or tablet at the pool side (see *Remote Control* and the remote section of each sport).
8. Show the result with **Result**. Your data is saved as you go.

> **Tip** A refused click is never silent: the reason appears in red under the bottom row of the Game page (and for a few seconds at the bottom of the remote).

3 The Main Window

aquaticsBoard 7 runs in one operator window. Six page tabs and the Settings tab sit on the coloured strip at the top; the **Game** page holds the control panel of the running sport, framed by the output strip on the left, the tool strip on the right and the on-air rows and bottom bar below.

The boards themselves are separate windows without a frame (one per output). You open them with the **St**, **Sp**, **Ad** and **CK** buttons; where each one goes (which monitor, full screen or an exact area) is set once on the Outputs page and kept for every later start.

Tabs and Side Strips

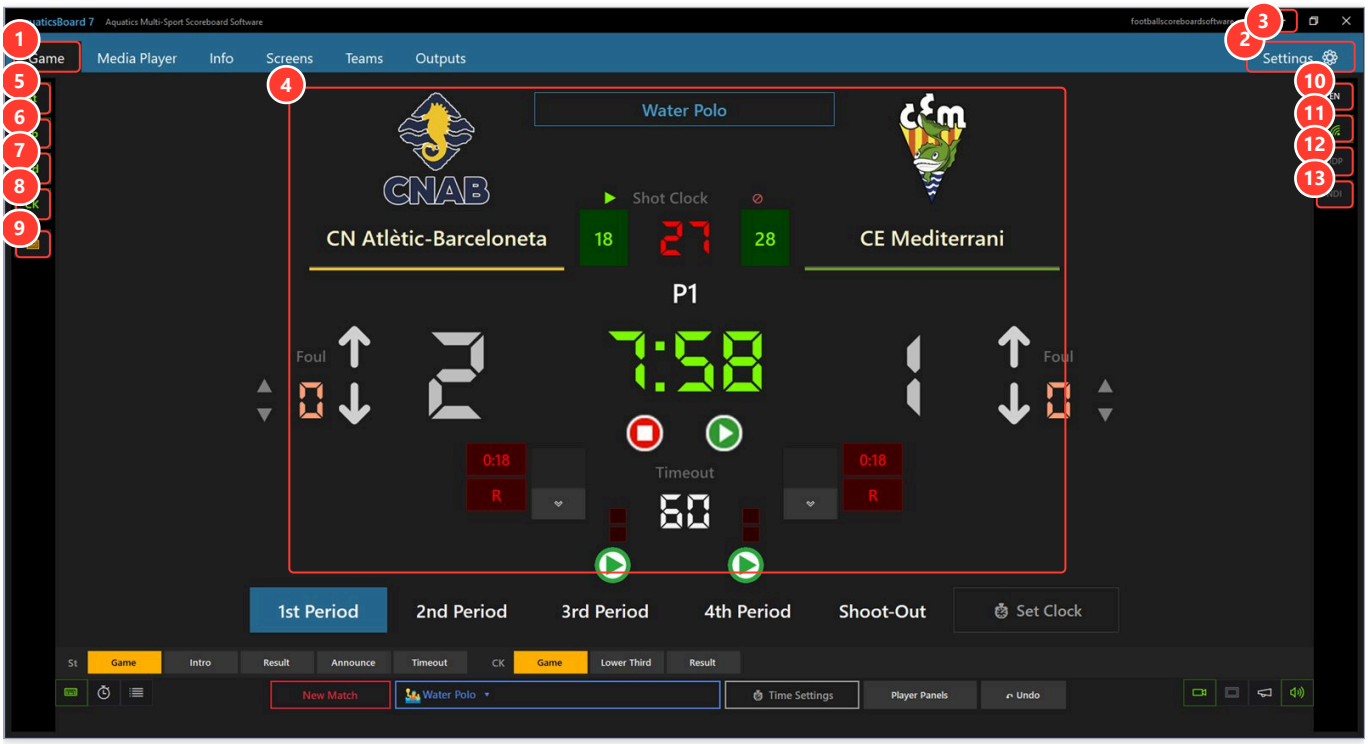


Figure 1. The Game page (Water Polo): tabs, output strip (left) and tool strip (right)

#	Control	What it does
1	**Page tabs**	Switch between the pages **Game** (the control panel), **Media Player** (videos and pictures on the board), **Info** (event graphics), **Screens** (which screen each output shows), **Teams** (names, colours, logos, team lists) and **Outputs** (monitors, window positions, designs, NDI, Sp / Ad media, video sources). The open tab has the dark colour of the page below it. Clicking **Game** while the Media Player shows a clip brings the scoreboard back.
2	**Settings**	Opens the Settings page: language, remote control, console and UDP integration, keyboard shortcuts.
3	**Minimise / Maximise / Close**	The window buttons. Drag the title bar to move the window. Closing the main window also closes all board windows.
4	**Control panel of the sport**	The scoreboard controls of the running sport: clock, period, scores, fouls, timeouts, penalties, sets and so on. They are explained in the chapter of each sport. The panel grows with the window, and so do the drop-down menus it opens (Card ▾, player lists, More ▾ …): their text is as large as the buttons that open them.

#	Control	What it does
5	**St – Standard (LED) output**	Click to open or close the **Standard** board window (the main scoreboard for the LED wall, video board or a monitor in the venue). The letters light green while the window is open. Where the window goes is set once on the Outputs page (see *Sending the Board to the LED Screen*).
6	**Sp – Sponsored output**	Opens or closes the **Sponsored** board: the scoreboard with the sponsor strip. **Right-click** opens the *Sp / Ad Media* dialog at the **Sponsor Strip (Sp)** tab.
7	**Ad – Advertising output**	Opens or closes the **Advertising** board: the scoreboard slice next to a large advertising area and up to two banners. **Right-click** opens the *Sp / Ad Media* dialog at the **Ad Layout** tab.
8	**CK – Chroma Key (Video) output**	Opens or closes the **Chroma Key** window: broadcast graphics on a green background for a vision mixer (or with transparency over NDI). **Right-click** opens the *Video Sources* window (camera, NDI or screen capture under the CK graphics).
9	**Preview Design**	Opens the design gallery: every master and own design of the sport, rendered live with the running match. One click puts a design on an output (see *Board Designs*).
10	**Language**	Shows the language menu (the button shows the code of the current language). The chosen language is saved and used after the next start of the program (see *Settings*).
11	**Remote Control**	Switches the phone / tablet remote control (the built-in web server) on or off. Lit green while the server runs; the tooltip shows the port.
12	**UDP Broadcast**	Switches the UDP state broadcast for LED controllers and other listeners on or off. Lit green while it runs.
13	**NDI**	Switches NDI on or off for **every output that is open**. Lit green while at least one open output sends NDI. NDI per output is on the Outputs page.

On-Air Rows and Bottom Bar

Below the control panel are two rows: the on-air screens of the St and CK outputs, and the bottom bar with the match commands and the tool icons.

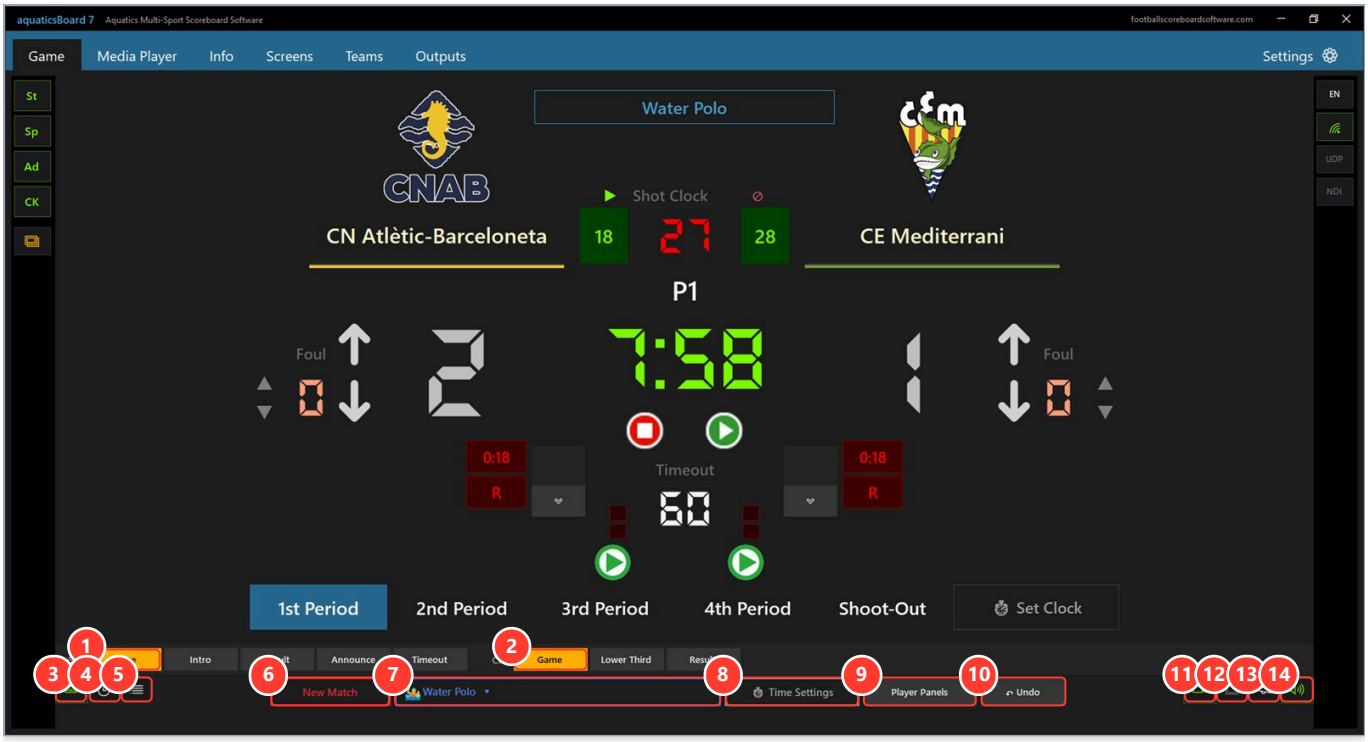


Figure 2. The Game page: on-air screens and bottom bar

#	Control	What it does
1	St screens	The screens of the Standard board: **Game** (the scoreboard) and the info screens of the design (**Intro**, **Result**, **Announce**, **Timeout** …). The screen on air is amber; click **Game** to return to the scoreboard.
2	CK screens	The screens of the Chroma Key output: **Game** (score bug), **Lower Third** (announcement) and **Result**. Event graphics (goal, card, substitution, team list, officials) go on air from the Info page.
3	Keyboard Shortcuts	Opens the keyboard shortcut editor. Lit green while the global shortcuts are on.
4	Time Settings (icon)	Opens the Time Settings of the discipline – the same as the **Time Settings** button.
5	Players	Opens the Teams page with the team lists.
6	New Match	Starts a new match of the same sport and discipline after a confirmation. Scores, clocks and statistics are reset; teams and team lists stay.
7	Sport · Discipline	Shows the running sport and discipline (rule set). Click to choose another sport or discipline.
8	Time Settings	Period lengths and names, overtime, timeout, shot clock, team foul limit and penalty times of the discipline. Shown amber with a ***** when the times differ from the default values.
9	Player Panels	Switches the Standard game screen between the plain scoreboard and the scoreboard with player panels (number, name, fouls, points …). Lit amber while the player panels are shown. Only for sports with player statistics. A name that does not fit its panel is shortened to the initial and the surname before it is cut with "…".
10	Undo	Takes back the last change of the score, fouls, timeouts, penalties … (up to 100 steps). Keyboard: `Ctrl` + `Z`. The bottom bar has this button only in the timed sports; the other sports have their Undo on their own panel, so there is never more than one Undo button.
11	Background Video	Plays the background video behind the St, Sp and Ad boards (the CK output stays green). Without a video in *data\media\background* a file dialog asks for one first.

#	Control	What it does
12	**Background Picture**	Shows a background picture behind the St, Sp and Ad boards. Without a picture in *data\media\background* a file dialog asks for one first.
13	**Horn**	Sounds the horn once on the PC speakers.
14	**Sound On / Off**	Switches all sounds (horn, shot clock horn, timeout signal) on or off. Lit green while the sounds are on.

> **Tip** When the panel refuses an action (for example a timeout when all timeouts are used, or Undo with nothing left to undo), the reason appears in red in the line under the bottom bar.

The Four Outputs

Every design has a set of boards for four outputs. Each output is its own window and can go to its own monitor, to NDI or to both at the same time.

Output	Name in the program	What it shows	Typical use
St	Standard (LED)	The full scoreboard and the full-screen info screens (Intro, Result, Announce, Timeout, Goal, Card, Substitution, Player Intro, Team List, Officials).	LED wall, video board or TV in the venue
Sp	Sponsored	The scoreboard with the sponsor strip (pictures, videos or scrolling text, see *Sp / Ad Media*) and the scrolling text of the Info page.	Venue screens that also carry sponsors
Ad	Advertising	The screen sliced into a scoreboard part, a large advertising area and up to two banners (see *Sp / Ad Media*).	Side boards, perimeter or concourse screens
CK	Chroma Key (Video)	Broadcast graphics (score bug, lower third, result, player, substitution, team list, officials) on a green background. Over NDI the green is sent as transparency.	vMix, OBS, CasparCG, hardware vision mixers

Board elements that only matter at times stay off the board until they have something to show: on the St and Ad boards a heading such as **Penalty**, **2 Min**, **Sin Bin**, **Card** or **Red Cards** appears only while a team has such a penalty or card (no empty “Card 0 0”), and score breakdown chips use the right number (*1 Goal*, *2 Goals*).

Until you add your own files, the Sp and Ad boards show sample sponsor pictures and videos. The background video and picture (bottom bar) appear behind St, Sp and Ad only; CK always keeps its key colour.

The Four Boards



Figure 3. St – Standard (LED) board



Figure 4. Sp – Sponsored board with the sponsor strip

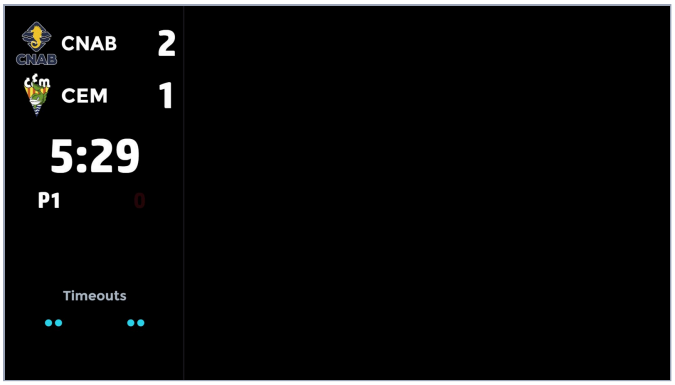


Figure 5. Ad – Advertising board

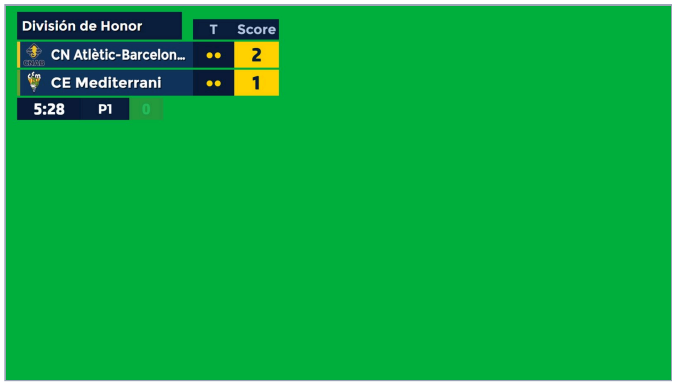


Figure 6. CK – Chroma Key output (green background)

Keys and Sounds in the Main Window

Key	What it does
`Space`	Starts or stops the game clock while the Game page is open (not while you type in a text box).
`Ctrl` + `Z`	Undo – the same as the Undo button (bottom bar or panel).
`F1` – `F12`, numpad	Global keyboard shortcuts of the sport (see *Keyboard Shortcuts*). They also work while another program has the focus.
`Esc`	Closes the open dialog (sport picker, Time Settings, Sp / Ad Media, keyboard shortcuts).
Right-click **Sp** / **Ad**	Opens the Sp / Ad Media dialog at the Sponsor Strip tab (Sp) or the Ad Layout tab (Ad).
Right-click **CK**	Opens the Video Sources window (camera, NDI or screen capture on the CK and Ad boards).

The program sounds the horn at the end of a period and of the match, a shot clock horn when the shot clock runs out, and a signal at the start and end of a timeout. Switch all sounds off with the speaker icon. To use your own horn, put a WAV file with the same name as the shipped sound (02.wav = horn, 03.wav = timeout, 04.wav = shot clock) into *data\sounds*.

4 Starting a Match

When aquaticsBoard 7 starts, it opens the sport and discipline that were used last, with the team setup of that sport. Every command during the match is written to a match journal, so a match survives a power cut or a crash (see *Restoring a Match after a Crash*).

New Match

Click **New Match** in the bottom bar (set sports and some others also have it on their panel). A confirmation appears:

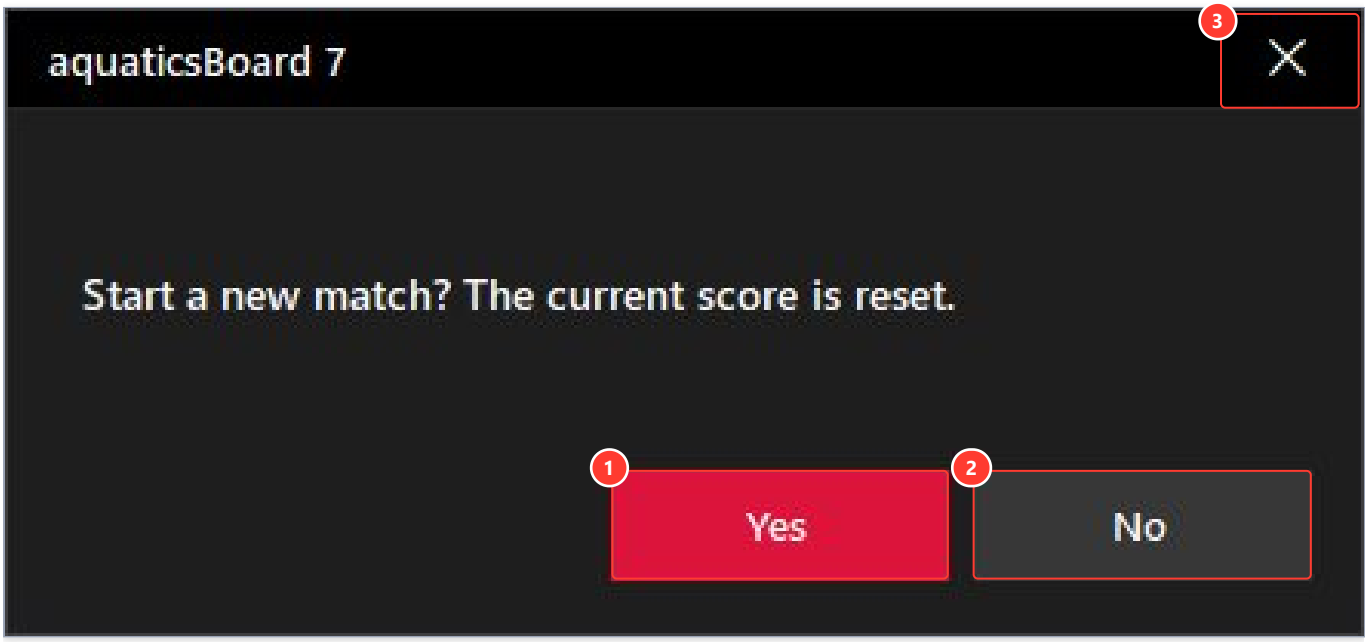


Figure 7. Confirmation of a new match

#	Control	What it does
1	**Yes**	Starts a new match of the same sport and discipline: scores, clocks, fouls, timeouts, penalties and player statistics are reset. Teams, colours, logos and team lists stay.
2	**No**	Keeps the running match.
3	**Close** (×)	The same as **No**. `Esc` also answers No.

> **Tip** The remote control has **New Match** in its *Match Control* section; it asks the same question on the phone.

Choosing the Sport and Discipline

Click the sport button in the middle of the bottom bar (it shows the sport and discipline, for example *Sport · Discipline* ▾). The picker shows every sport of aquaticsBoard 7 as a tile and, below, the disciplines (rule sets) of the chosen sport.

The Sport Picker

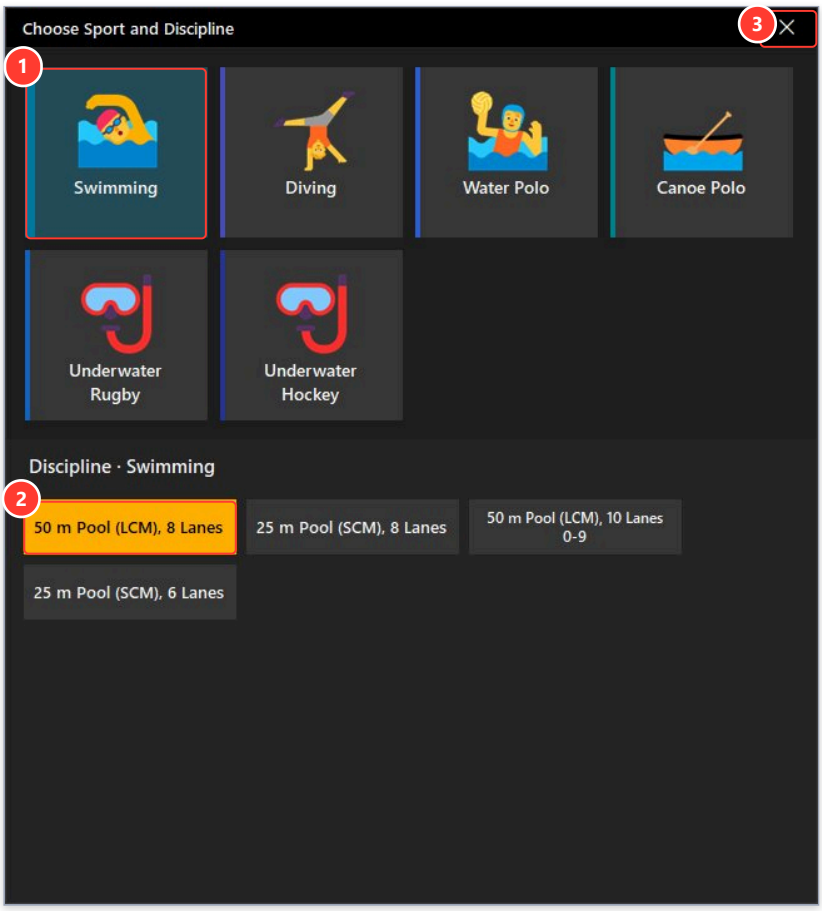


Figure 8. Choose Sport and Discipline

#	Control	What it does
1	**Sport tiles**	Every sport of aquaticsBoard 7. Click a sport to show its disciplines below. The running sport is tinted in its colour. A sport with only one discipline is chosen with one click.
2	**Disciplines**	The rule sets of the chosen sport (e.g. league, junior or international rules with their own period lengths, timeouts and limits). Click a discipline to start it. The running discipline is amber; choosing it again changes nothing.
3	**Close (×)**	Closes the picker without a change (also `Esc`).

The disciplines of every sport of aquaticsBoard 7:

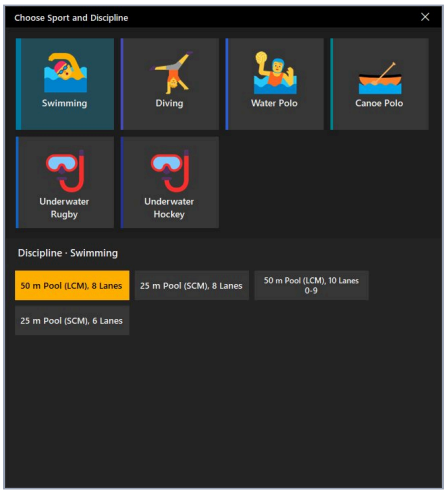


Figure 9. Swimming – its disciplines

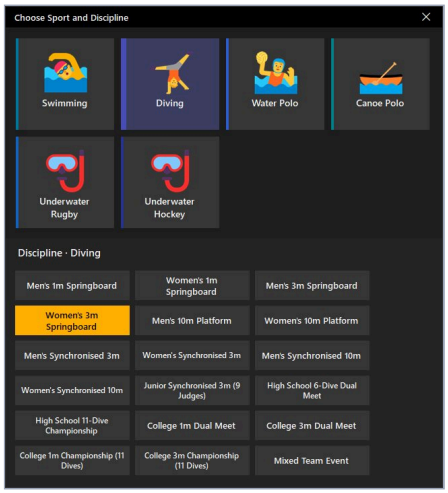


Figure 10. Diving – its disciplines

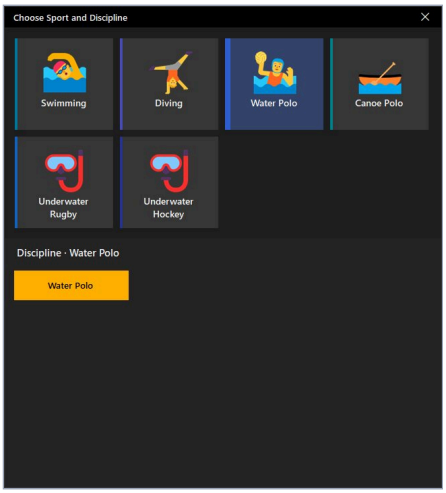


Figure 11. Water Polo – its disciplines

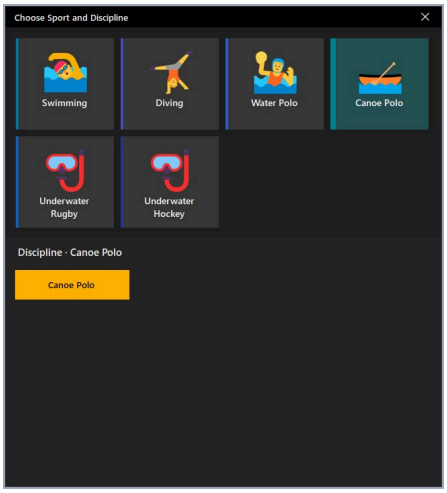


Figure 12. Canoe Polo – its disciplines

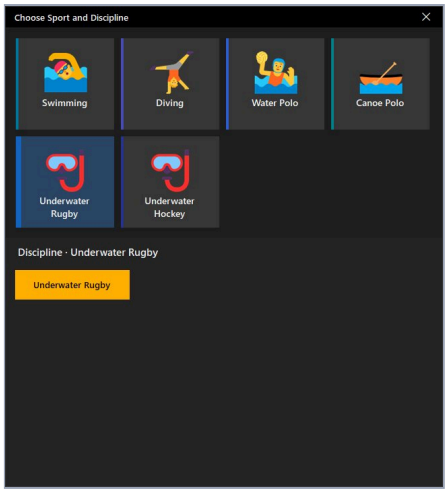


Figure 13. Underwater Rugby – its disciplines

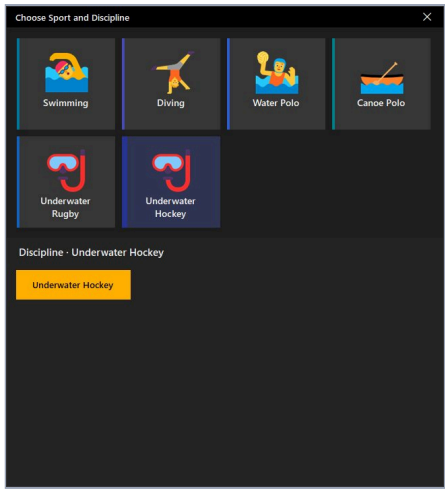


Figure 14. Underwater Hockey – its disciplines

Switching during a Match

If a match is in progress (a score other than 0, the clock running or a set played), the program asks before it switches. The new sport starts with its own team setup, designs and keyboard shortcuts; the choice is remembered for the next start.

Switch Confirmation

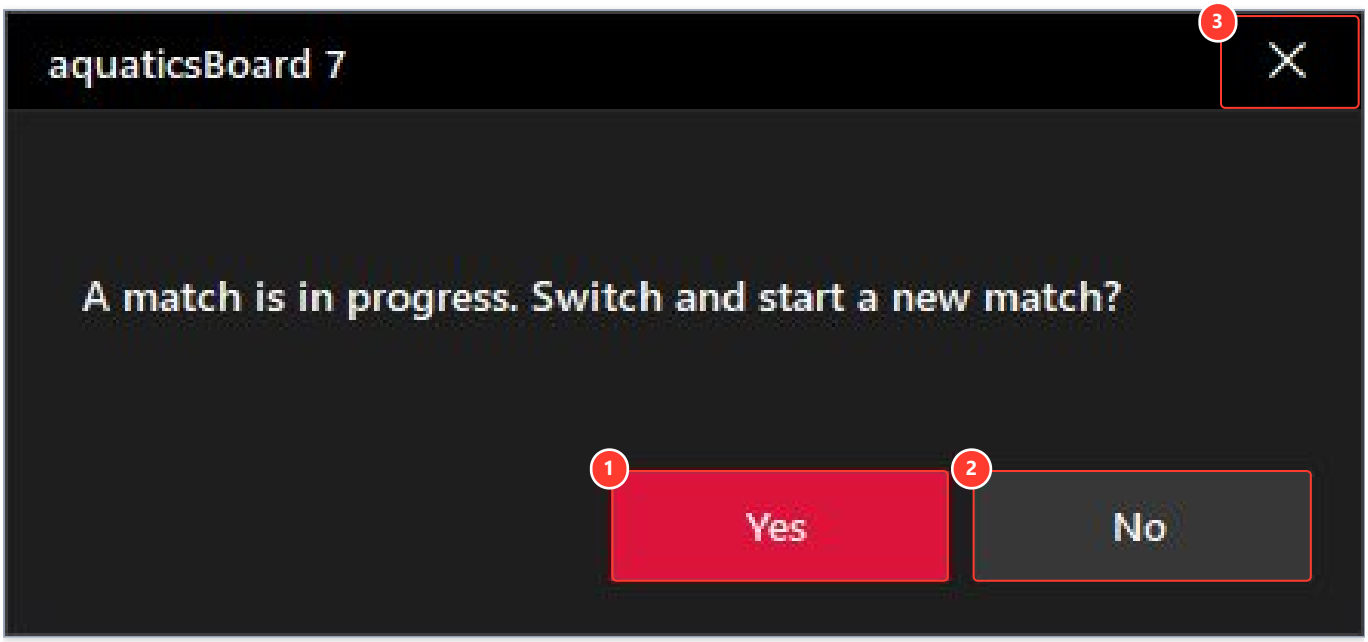


Figure 15. “A match is in progress. Switch and start a new match?”

#	Control	What it does
1	Yes	Ends the running match and starts the chosen sport / discipline with a new match.
2	No	Stays with the running match; nothing changes.
3	Close (×)	The same as **No**. `Esc` also answers No.

Time Settings

Click **Time Settings** (or the stopwatch icon at the bottom left) to change the times of the running discipline. The title bar names the sport and, when the preset has a name of its own, the discipline. The window grows with the number of rows, so the last row is always visible. The dialog only shows what the discipline has:

- **Periods** – the name of each period as the board shows it (Q1, 1H, P1 …) and its duration in m:ss.
- **Overtime** – the names of the overtime periods as the period buttons show them, separated by commas (e.g. *ET1, ET2*), and their duration. Where the preset has one overtime name such as *OT*, further overtime periods are numbered automatically (OT1, OT2 …).
- **Timeouts** – the length of a timeout.
- **Shot Clock** – full time and reset time in seconds (e.g. 24 / 14).
- **Team Fouls** – the foul limit (penalty situation / bonus).
- **Penalties** – the length of each timed penalty (e.g. 2 minutes).
- Set sports: **Sets to Win**, **Points per Set**, **Deciding Set Points**, timeout and technical timeout length.
- Cricket: **Match Format** – overs per innings, overs per bowler, days of a two-innings match, balls per over, players per side, reviews, powerplay overs and the timeout length, depending on the format.
- Swimming and diving have no time settings (the dialog says so); their rules belong to the meet and the event.

Times are typed as m:ss (plain seconds are accepted too). The Time Settings dialog of every sport, with its own rows, is shown in the chapter of that sport. The three buttons at the bottom are the same everywhere:

Button	What it does
Default Values	Fills in the factory values of the discipline after a confirmation (below). Nothing is saved until you click Save.
Cancel	Closes without saving. When you changed something, it asks *"Discard Changes?"* first.
Save	Checks and saves the values. An invalid value is reported in red at the bottom of the dialog and nothing is saved.

Confirmations of the Time Settings

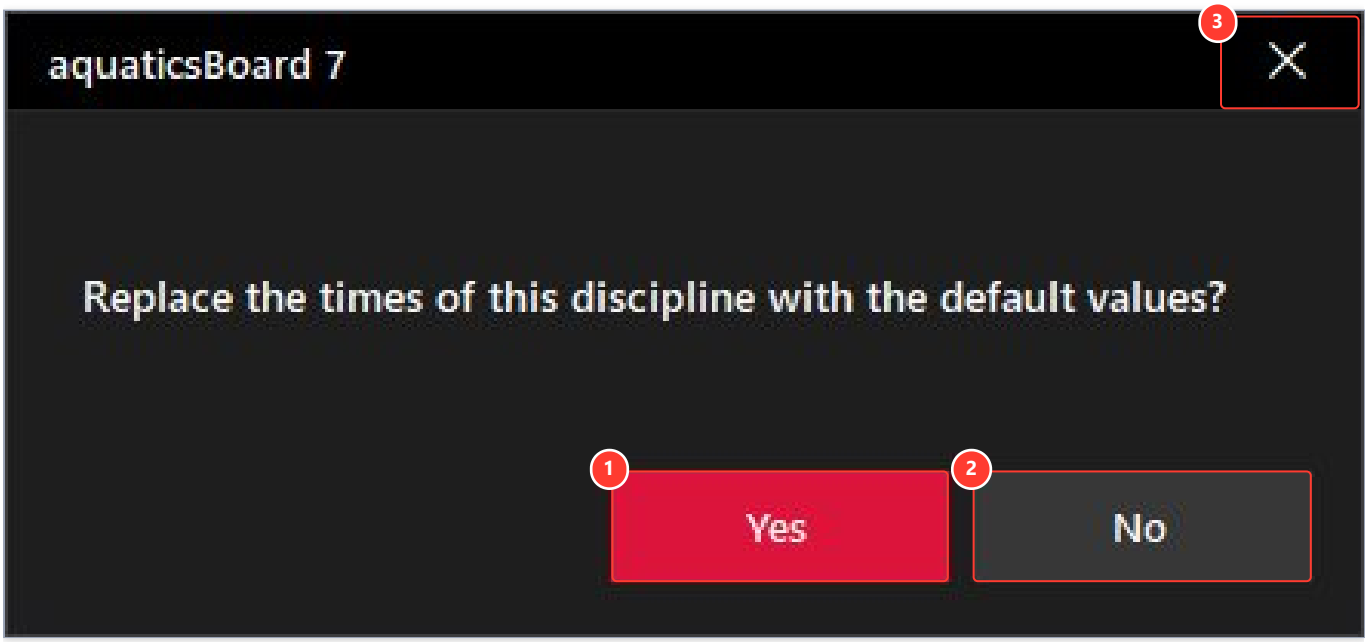


Figure 16. "Replace the times of this discipline with the default values?" (Default Values)

#	Control	What it does
1	Yes	Fills every row with the factory value of the discipline. Click **Save** afterwards to keep them.
2	No	Keeps the values in the dialog.

#	Control	What it does
3	Close (×)	The same as **No**. `Esc` also answers No.



Figure 17. “Discard Changes?” (Cancel or × after a change)

#	Control	What it does
1	Yes	Closes the dialog and forgets the changes.
2	No	Returns to the dialog with your changes.
3	Close (×)	The same as **No**. `Esc` also answers No.

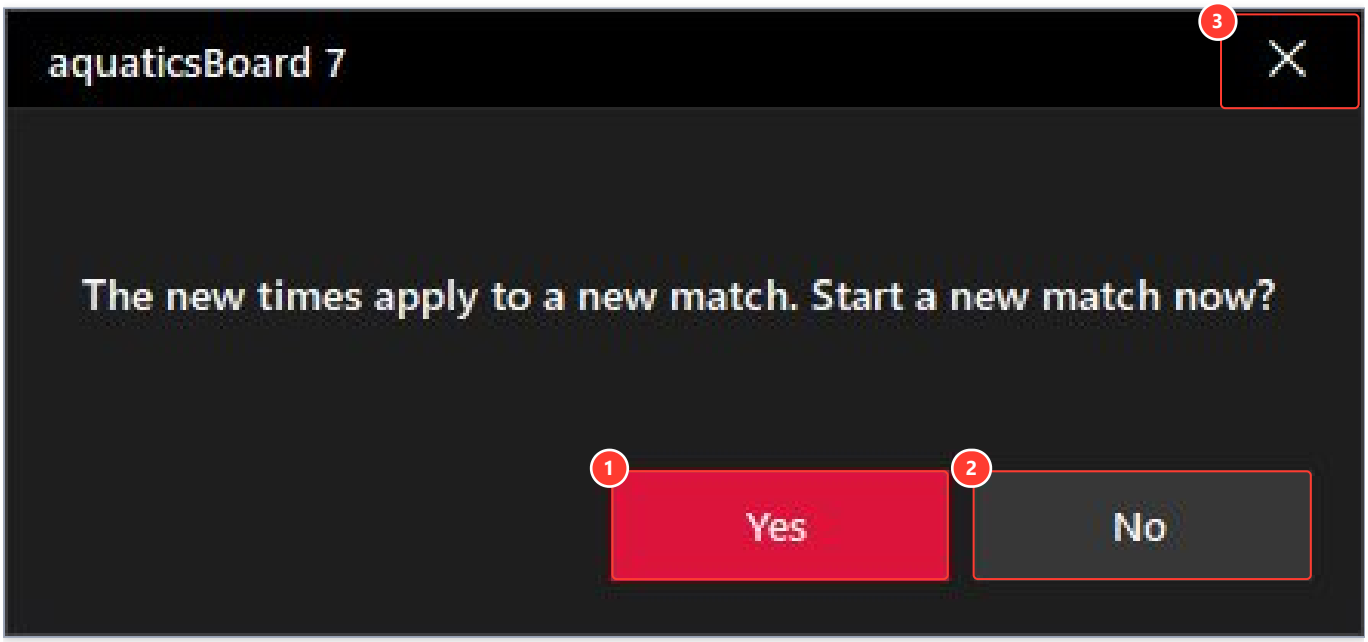


Figure 18. “The new times apply to a new match. Start a new match now?” (Save during a match)

#	Control	What it does
1	Yes	Starts a new match at once with the new times.

#	Control	What it does
2	**No**	Keeps the running match with the old times; the new times are used from the next new match.
3	**Close** (×)	The same as **No**. `Esc` also answers No.

When the New Times Apply

Saved times are stored per discipline (only the values that differ from the factory values) and are used for every later match of that discipline. After **Save** a new match starts at once; if a match is in progress the program first asks whether to start one now (above).

> **Note** While a discipline uses own times, the Time Settings button shows an asterisk (**Time Settings ***) in amber. Use **Default Values** and **Save** to return to the official times.

Undo

Undo (the Undo button, `Ctrl`+`Z`, or `F12` in the default keyboard shortcuts) takes back the last scoring change: points, goals, fouls, timeouts, penalties, period changes and so on, up to 100 steps back. The running clocks keep their time. Undo also works from the remote control. Text changes and info graphics are not part of Undo.

There is one Undo button per sport: in the timed sports it is in the bottom bar; set sports, beach tennis, cricket and the swimming desk have it on their own panel and no Undo in the bottom bar. The dive desk has no Undo button: use **Correct** for a published dive, or `Ctrl`+`Z` / the remote Undo.

Restoring a Match after a Crash

If aquaticsBoard 7 did not close normally (power cut, Windows update, crash), the next start finds the journal of the unfinished match and asks whether to restore it. The question names the sport and the time of the last entry.

Restore Question

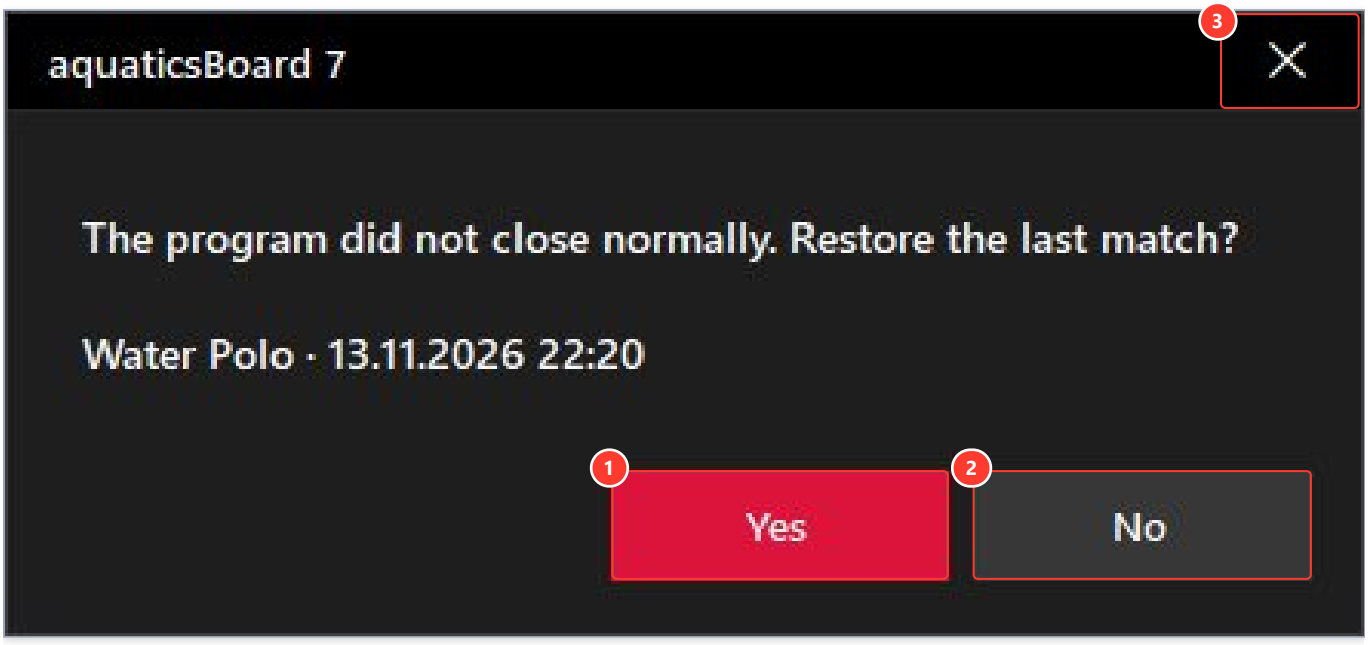


Figure 19. “The program did not close normally. Restore the last match?”

#	Control	What it does
1	**Yes**	Replays every command of the journal: scores, fouls, timeouts, penalties, periods and the team setup are back as they were. The clock is **stopped** and shows the time of the last recorded action.
2	**No**	Starts with a new match of the last sport. The journal file stays in *data\matches*.
3	**Close** (×)	The same as **No**. `Esc` also answers No.

1. Answer **Yes**.
2. Compare the clock with the official time and correct it with **Set Clock** if needed (the time that ran between the last action and the crash is not in the journal).
3. Check that the boards are open (St / Sp / Ad / CK – every output that was on opens again by itself at its place) and start the clock.

5 The Info Page

The Info page puts event graphics on air: announcements, goals, cards and time penalties, player intros, substitutions, team lists and officials. Each row has its team, its player fields and a **Show** button. Which rows you see depends on the sport and the design: basketball has no goal or card row, handball has its 2-minute penalties, set sports show sanctions (warning, penalty, expulsion, disqualification), sports that count red cards have a Red Card row, and swimming, diving and cricket keep only the announcement, the scrolling text and the info screens.

The Rows of the Info Page

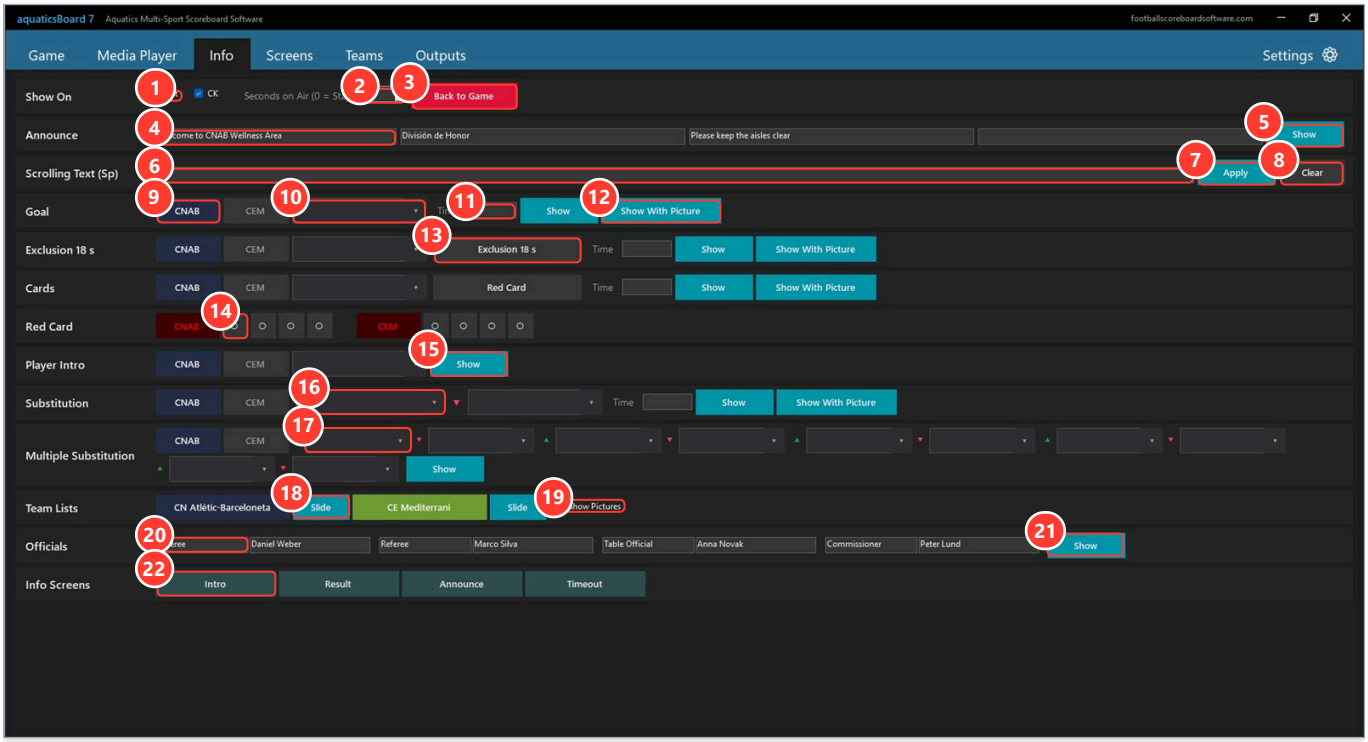


Figure 20. The Info page

#	Control	What it does
1	**Show On: St / CK**	Where the graphics of this page go: the Standard board (full-screen info screen) and / or the Chroma Key output (broadcast graphic). CK is ticked when the CK output was open when the page was built.
2	**Seconds on Air (0 = Stay)**	How long a graphic stays on air before the outputs return to the game screen (0–120 s, default 10). **0** = the graphic stays until you click Back to Game.
3	**Back to Game**	Takes the graphic off at once and returns St and CK to the game screen (it also stops a running team slide). An output that you switched to another screen in the meantime is left alone.
4	**Announce: Title, Line 1, Line 2, Line 3**	Free announcement texts (welcome, next match, safety notes …): a title and up to three lines. The same four texts are on the Screens page.
5	**Announce: Show**	Saves the texts and shows the **Announce** screen on St and the **Lower Third** on CK (the title and the first two lines).
6	**Scrolling Text (Sp)**	The text that scrolls on the Sponsored board – in its own band above the sponsor strip or inside the strip (see *Sp / Ad Media*).

#	Control	What it does
7	**Apply**	Puts the scrolling text on the Sp board.
8	**Clear**	Empties the text and removes the scrolling text from the Sp board (the sponsor strip shows its own content again).
9	**Team buttons**	Every player row starts with the two teams (short names). The chosen team is shown in its team colour; changing the team empties the player fields of the row.
10	**Player field**	Type a number and / or a name (e.g. *17 John Smith*) or click ▾ to pick from the team list (menu below). A typed player that is not in the team list is added to it (number and name).
11	**Time**	The box after the **Time** label: minute or game time printed on the graphic. Empty = the game clock at the moment you click Show. The box empties after each Show.
12	**Show / Show With Picture**	**Show** puts the graphic on air with number and name; **Show With Picture** adds the player photos chosen in the **Photo** column of the Teams page (a player without a photo is shown without one).
13	**Card / penalty type**	Chooses the card or time penalty of the sport (yellow card, 2 minutes, warning …). The title of the graphic is the chosen type (menus below).
14	**Red Card counts**	Four dots per team set the number of red cards of the team on the board (0–4). Click the last lit dot to take one back. This row changes the score data directly (it is the same as the red card count on the Game page).
15	**Player Intro: Show**	Shows one player (number, name, photo when there is one) on St and as the player graphic on CK.
16	**Substitution: In ▲ / Out ▼**	The player coming in (green ▲) and the player going out (red ▼). Show / Show With Picture put both on one graphic.
17	**Multiple Substitution**	Up to five in ▲ / out ▼ pairs of one team. Each pair (green ▲ in, red ▼ out) stays together as one block; when the row is too narrow, a whole pair moves to the next line. Pairs with an empty field are left out. **Show** puts all pairs on one graphic (St *Substitutions*, CK *Substitutions*).
18	**Team Lists: team / Slide**	The team button (team name in its colour) shows the whole team list of that team. **Slide** shows the players marked Show one after the other as player intros (every half of Seconds on Air, at least 3 s), then returns to the game screen.
19	**Show Pictures**	Team lists with the player photos (from the **Photo** column of the Teams page).
20	**Officials**	Four pairs of role and name (referee, umpire, table official, commissioner …). Rows with an empty name are left out.
21	**Officials: Show**	Saves the officials with the team setup and shows the officials graphic on St and CK.
22	**Info Screens**	The other info screens of the design: **Intro** (event and teams), **Result**, **Announce**, **Timeout** where the sport has one (cricket adds **Batting** and **Bowling**). They follow Show On and Seconds on Air like the rows above.

1. Tick where the graphic goes (**St**, **CK** or both) and set **Seconds on Air**.
2. Choose the team in the row.
3. Type the player (number, name or both) or pick from the list with ▾; for a card choose the type, for a goal the score type if there is a list.
4. Optionally type the minute into the **Time** box; leave it empty to use the game clock.

5. Click **Show** (or **Show With Picture**). After the seconds on air the outputs return to the game screen by itself; **Back to Game** ends it earlier.

> **Tip** You can work without team lists: a number alone is enough for the graphic. A number with a name is added to the team list of the Teams page, so it is there for the next graphic and the next match.

> **Note** A row appears only when the St or CK design has a screen for it, and a graphic is only put on an output whose design has that screen. Apart from the Red Card row, the Info page does not change the score: goals, fouls and cards for the board are entered on the Game page.

The Player List (▾)

Click ▾ in a player field: the list shows the players of the chosen team that are marked **Show** on the Teams page, with number and name.

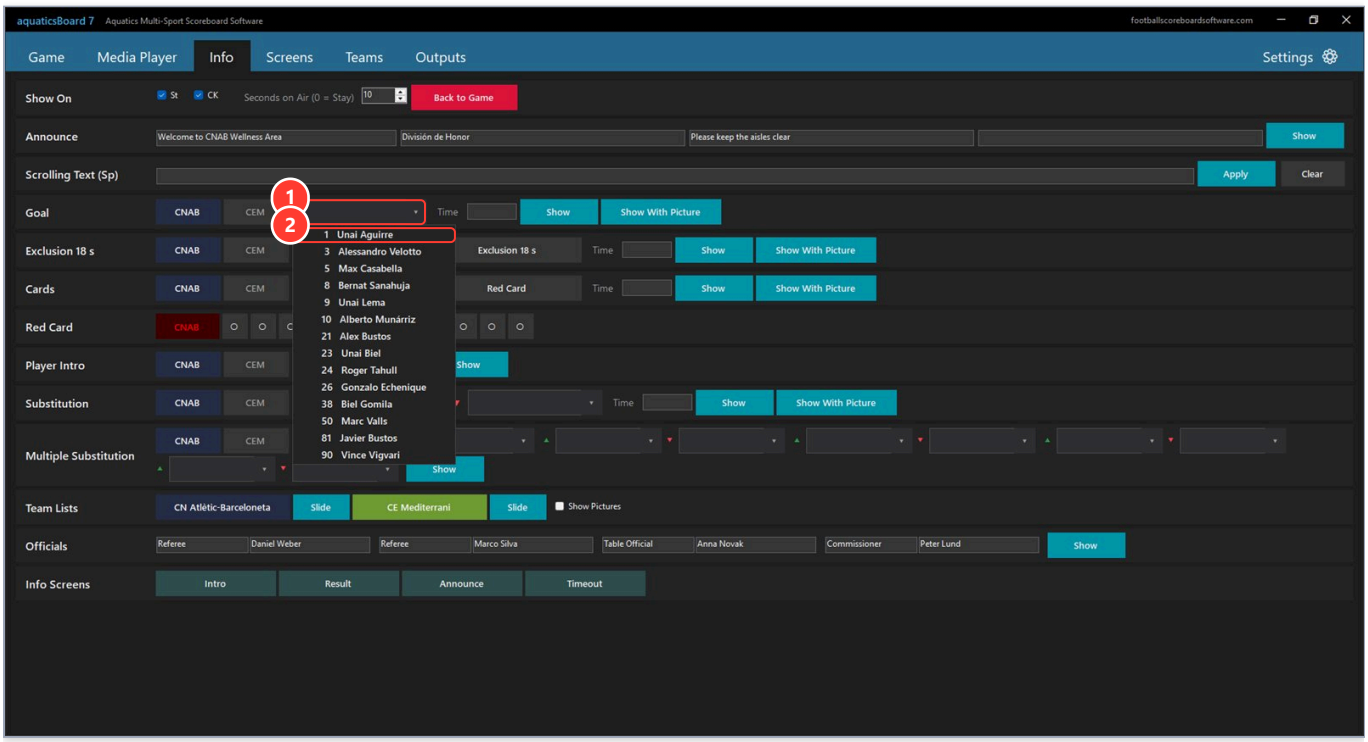


Figure 21. The player list of a player field (Water Polo)

#	Control	What it does
1	**Player field**	The field whose list is open. You can also type here instead of picking.
2	**Players (number, name)**	Click a player to put number and name into the field. The list has one entry per player marked Show; it scrolls when the team is long.

Score Type, Card and Sanction Lists

The type list of a row decides the title of the graphic. Every sport has its own entries:

Water Polo

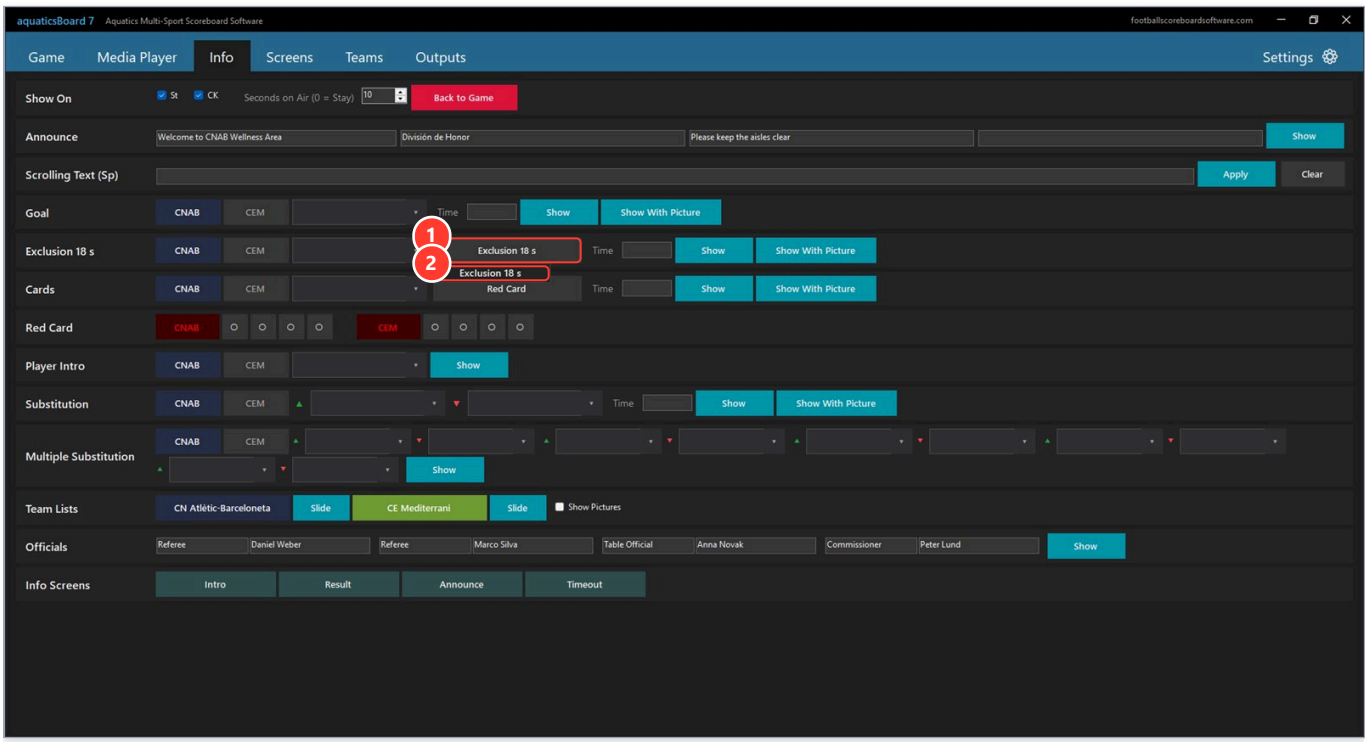


Figure 22. Water Polo: the cards / time penalties of the row

#	Control	What it does
1	**Type list**	Click to open the list; the chosen entry is the title of the graphic. The penalty itself (its clock, the count on the board) is entered on the Game page.
2	**Exclusion 18 s**	An exclusion for 18 seconds (water polo).

Canoe Polo

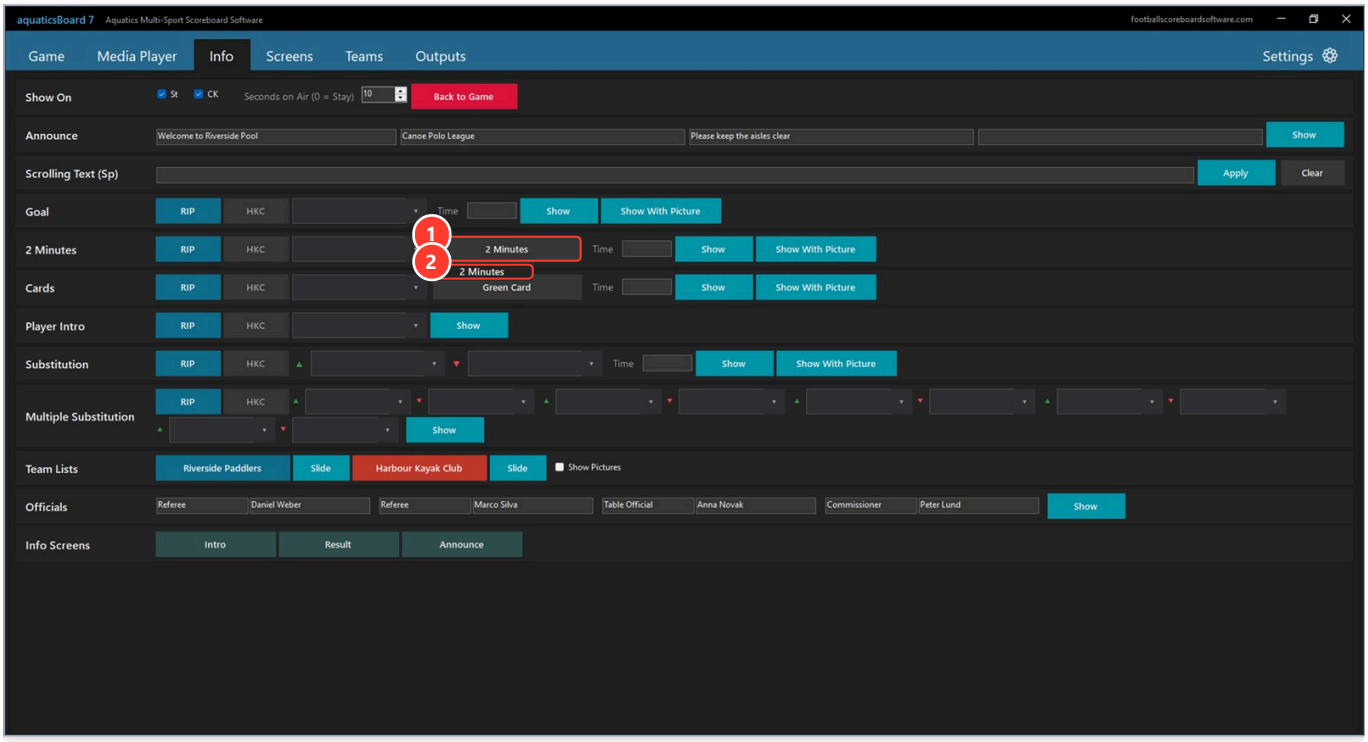


Figure 23. Canoe Polo: the cards / time penalties of the row

#	Control	What it does
1	Type list	Click to open the list; the chosen entry is the title of the graphic. The penalty itself (its clock, the count on the board) is entered on the Game page.
2	2 Minutes	A two-minute suspension (time penalty).

Underwater Rugby

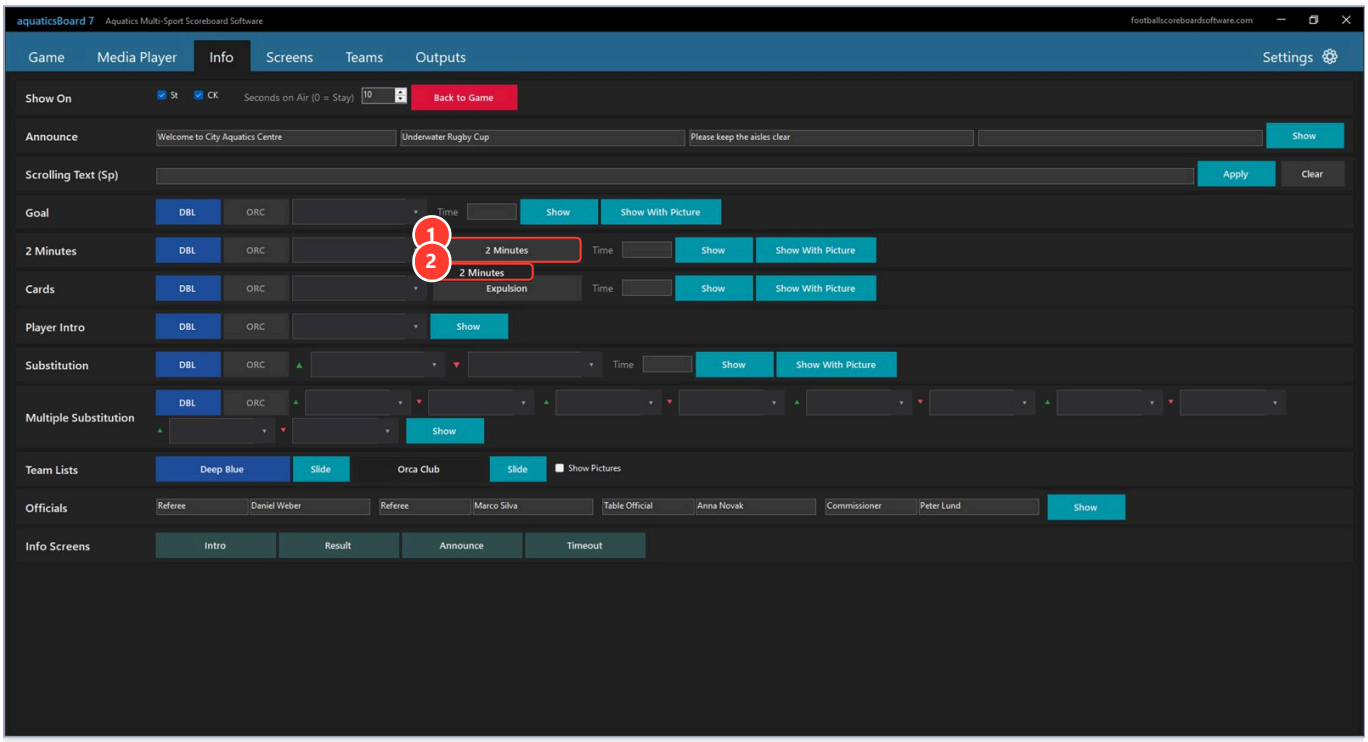


Figure 24. Underwater Rugby: the cards / time penalties of the row

#	Control	What it does
1	Type list	Click to open the list; the chosen entry is the title of the graphic. The penalty itself (its clock, the count on the board) is entered on the Game page.
2	2 Minutes	A two-minute suspension (time penalty).

Underwater Hockey

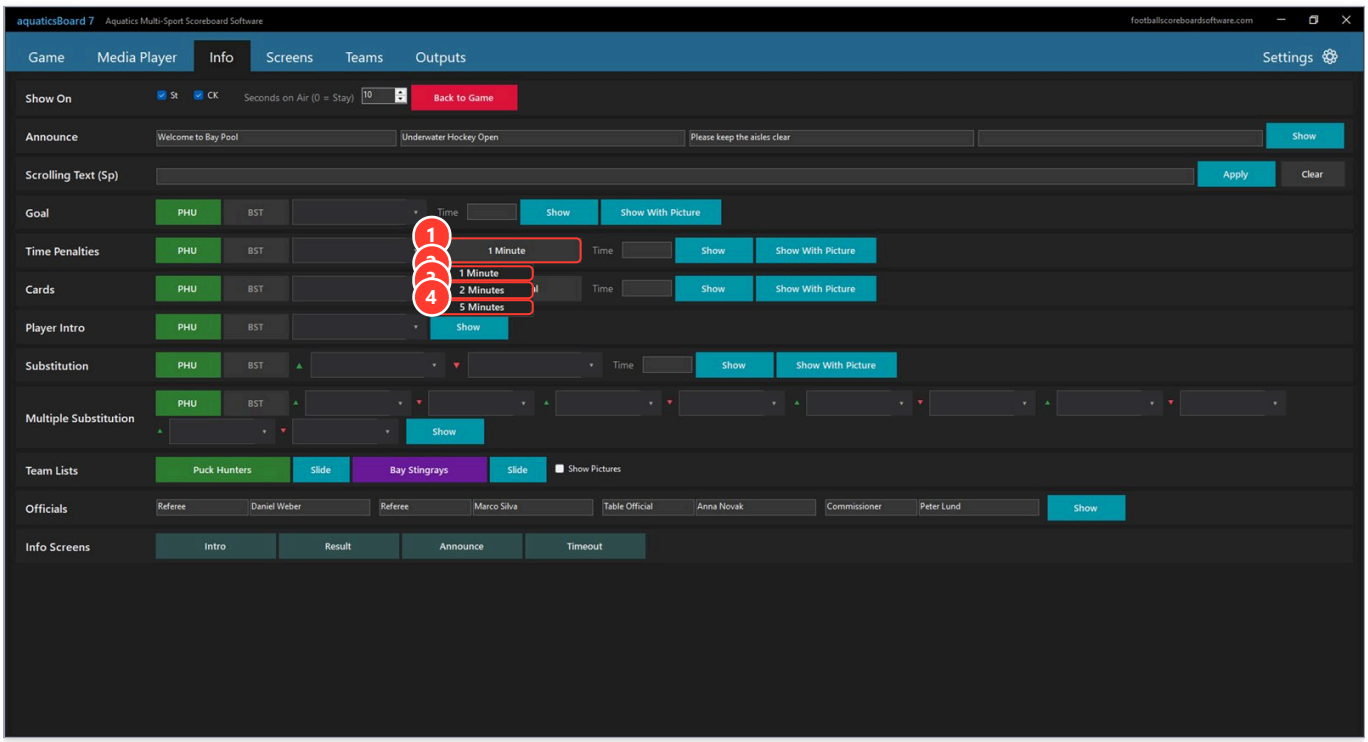


Figure 25. Underwater Hockey: the cards / time penalties of the row

#	Control	What it does
1	**Type list**	Click to open the list; the chosen entry is the title of the graphic. The penalty itself (its clock, the count on the board) is entered on the Game page.
2	**1 Minute**	A one-minute time penalty.
3	**2 Minutes**	A two-minute suspension (time penalty).
4	**5 Minutes**	A five-minute time penalty.

The Info Page of Each Sport

The rows follow the sport. The pages of all sports of aquaticsBoard 7:

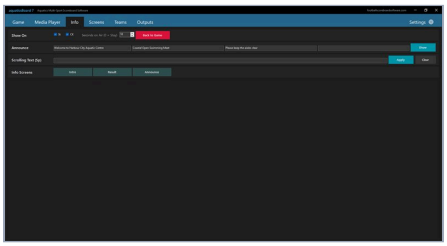


Figure 26. Swimming: Announce, scrolling text and the info screens only (no player rows)

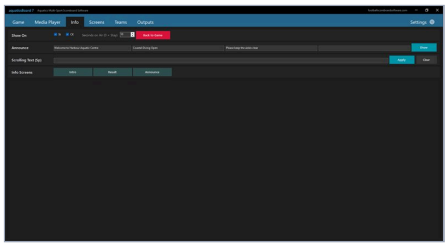


Figure 27. Diving: Announce, scrolling text and the info screens only (no player rows)

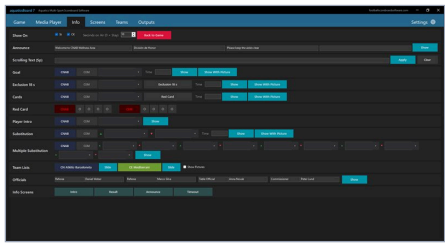


Figure 28. Water Polo: Goal row, time penalty and card rows (Exclusion 18 s, Red Card …), Red Card row, Timeout screen

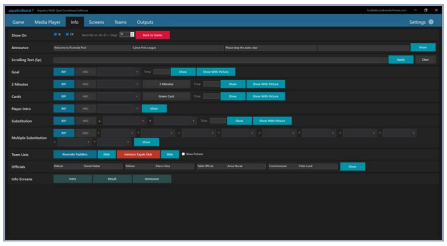


Figure 29. Canoe Polo: Goal row, time penalty and card rows (2 Minutes, Green Card ...)

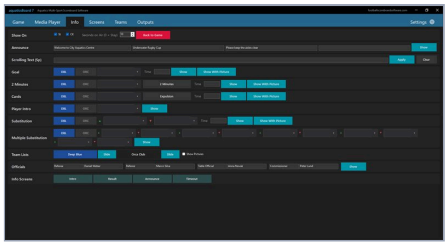


Figure 30. Underwater Rugby: Goal row, time penalty and card rows (2 Minutes, Expulsion ...), Timeout screen

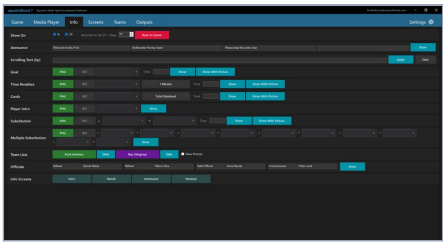


Figure 31. Underwater Hockey: Goal row, time penalty and card rows (1 Minute, Total Dismissal ...), Timeout screen

Info Screens on the Standard Board

The full-screen graphics of the St output (Arena master design, with the background video). Each comes from the row of the same name or from the Info Screens row:



Figure 32. Intro – event name, both teams with logos, date and time



Figure 33. Result

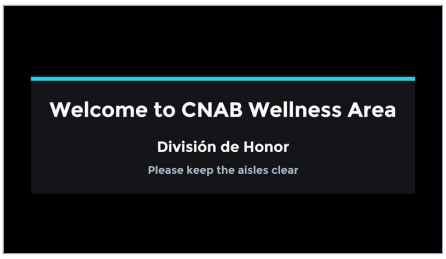


Figure 34. Announce – title and announcement lines



Figure 35. Timeout



Figure 36. Goal – scorer with number, name, photo, team and score

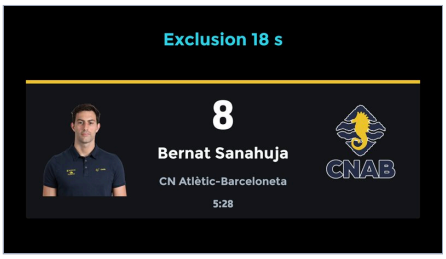


Figure 37. Card / penalty – player, team, type and game time

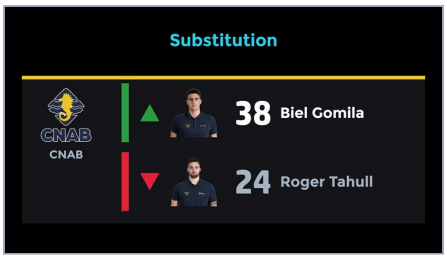


Figure 38. Substitution – player in (▲) and out (▼)

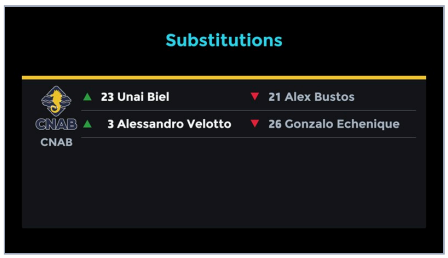


Figure 39. Multiple Substitution – several pairs of one team

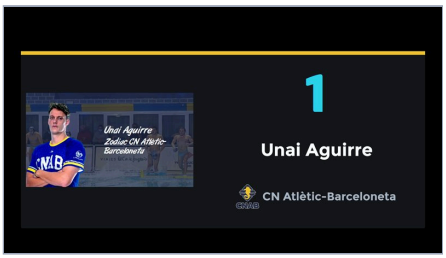


Figure 40. Player Intro



Figure 41. Team List

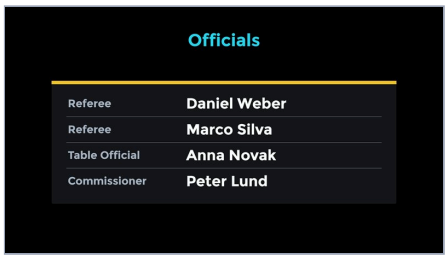


Figure 42. Officials

Broadcast Graphics on the CK Output

The same events on the Chroma Key output (Broadcast master design). The green is keyed out by the vision mixer, or sent as transparency over NDI:

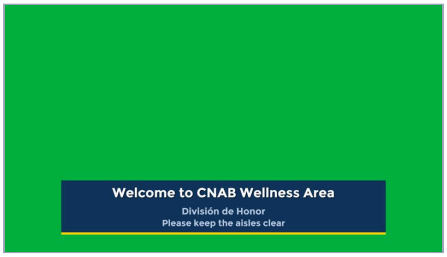


Figure 43. CK Lower Third – the announcement title and two lines

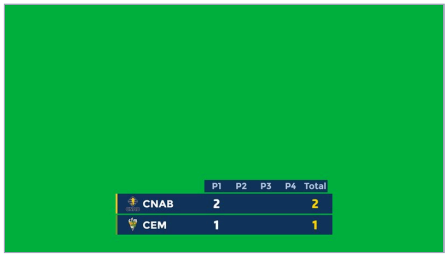


Figure 44. CK Result

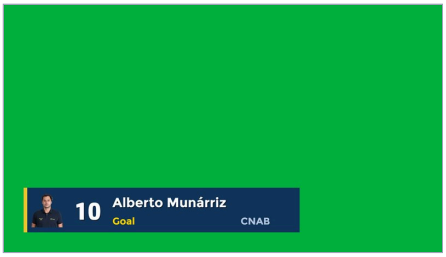


Figure 45. CK Player – goal, card or player intro



Figure 46. CK Substitution

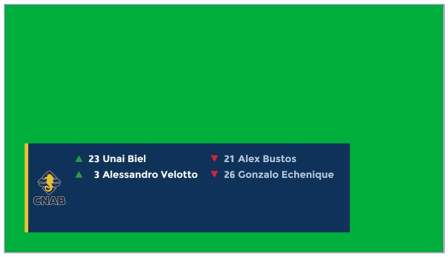


Figure 47. CK Multiple Substitution



Figure 48. CK Team List



Figure 49. CK Officials

6 The Screens Page

The Screens page has three columns: the screens of the St output, the screens of the CK output and the announcement texts. One click on a screen button puts that screen on air at once (without the Seconds on Air timer of the Info page). The screen on air is green.

Which screens appear depends on the design of the output and on the sport: the masters have the screens shown here; an own design may have more or fewer. A Goal or Card screen is never offered in a sport that has no goals or no cards / penalties, even when an older own design still contains it. The Sp and Ad outputs always show their game screen.

> **Tip** The on-air row of the Game page has the same St and CK screens except the event screens, so you rarely need to leave the Game page during play.

Screen Buttons

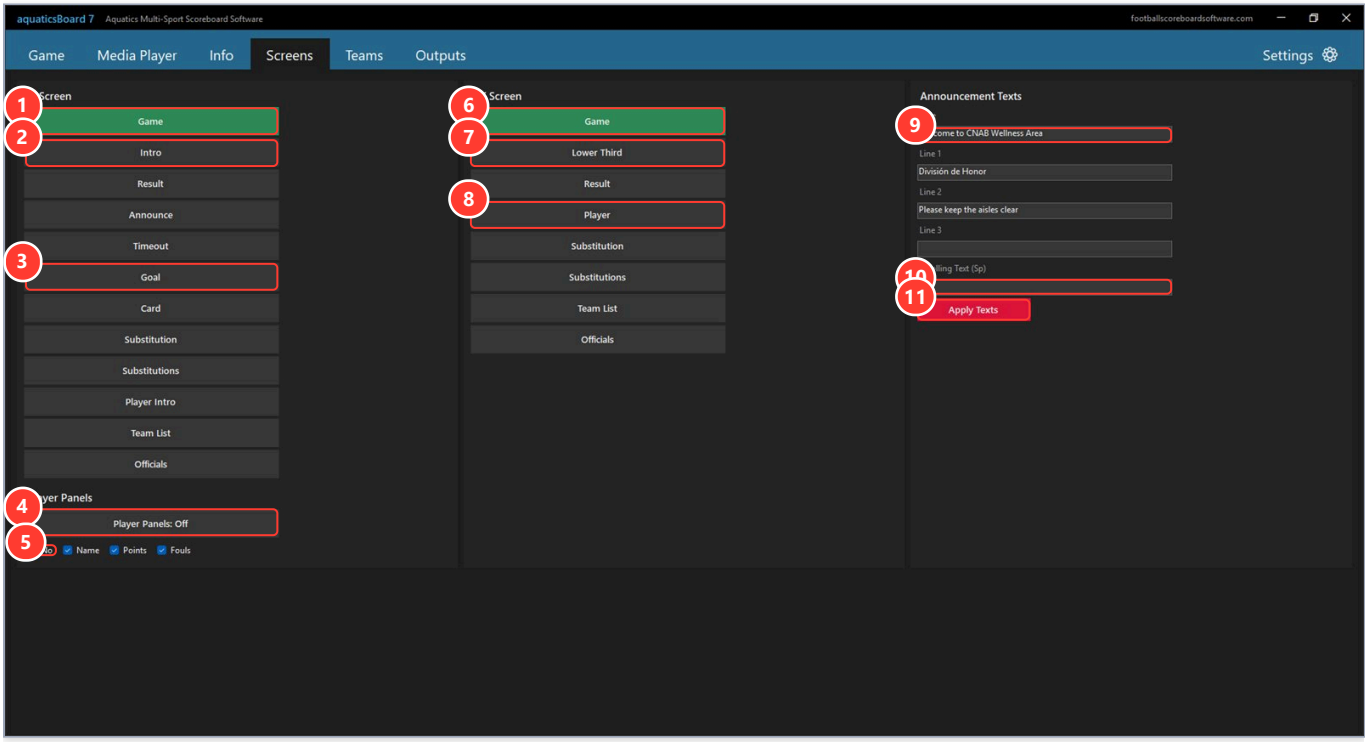


Figure 50. The Screens page

#	Control	What it does
1	St Screen: Game	The scoreboard of the Standard output. Click to return from any info screen.
2	St info screens	**Intro**, **Result**, **Announce** and, where the sport has one, **Timeout** (cricket: **Batting**, **Bowling**): shown with the data of the running match.
3	St event screens	**Goal**, **Card**, **Substitution**, **Substitutions**, **Player Intro**, **Team List**, **Officials**: they show the player or team last chosen on the Info page. Use the Info page to fill them. **Goal** is offered only in sports that score goals (for example not in basketball) and **Card** only in sports with cards, time penalties or sanctions (for example not in basketball, Aussie Rules or American football).
4	Player Panels: On / Off	Switches the St game screen between the plain scoreboard and the scoreboard with player panels (the same as the Player Panels button on the Game page). Green while On.

#	Control	What it does
5	**Player panel columns**	Which columns the player panels show: **No**, **Name** and the statistics of the sport (**Fouls**, **Points**, **Penalties**, **Cards**). Saved per sport.
6	**CK Screen: Game**	The score bug of the Chroma Key output.
7	**CK Lower Third / Result**	The announcement as a lower third, and the result graphic.
8	**CK event graphics**	**Player**, **Substitution**, **Substitutions**, **Team List**, **Officials**: the last content sent from the Info page.
9	**Announcement Texts**	**Title** and **Line 1** – **Line 3** of the announcement screens: St Announce shows the title and all three lines, the CK Lower Third the title and the first two lines. The same texts as in the Announce row of the Info page.
10	**Scrolling Text (Sp)**	The text that scrolls on the Sponsored board (the same as on the Info page). Empty = no scrolling text.
11	**Apply Texts**	Puts the title, the three lines and the scrolling text on the boards.

The Screens Page of Each Sport

The screen lists of the master designs of every sport (player panel options only where the sport keeps player statistics):

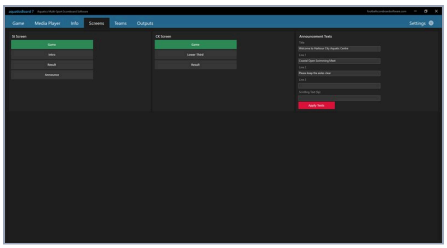


Figure 51. Swimming

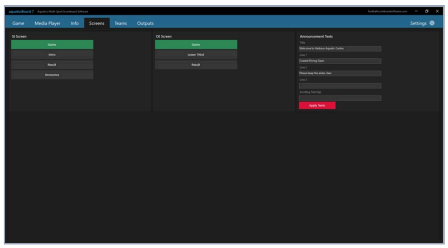


Figure 52. Diving

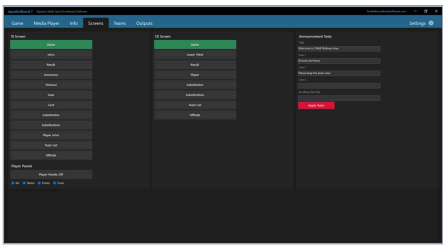


Figure 53. Water Polo

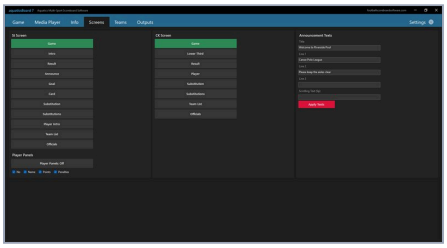


Figure 54. Canoe Polo

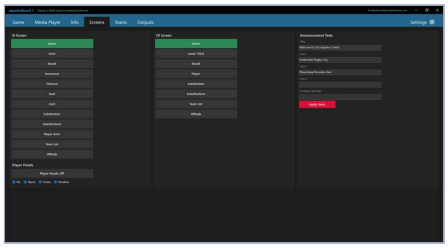


Figure 55. Underwater Rugby

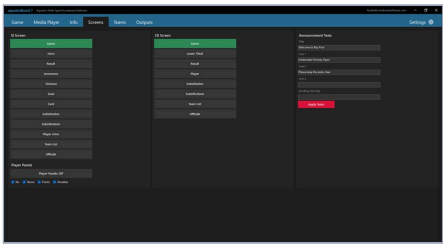


Figure 56. Underwater Hockey

7 Teams and Players

The Teams page holds the event, the two teams and their team lists. The setup is saved per sport (*data\config\<sport>\setup.json*) and stays when you start a new match; switching to another sport loads that sport's own setup.

Event and Teams

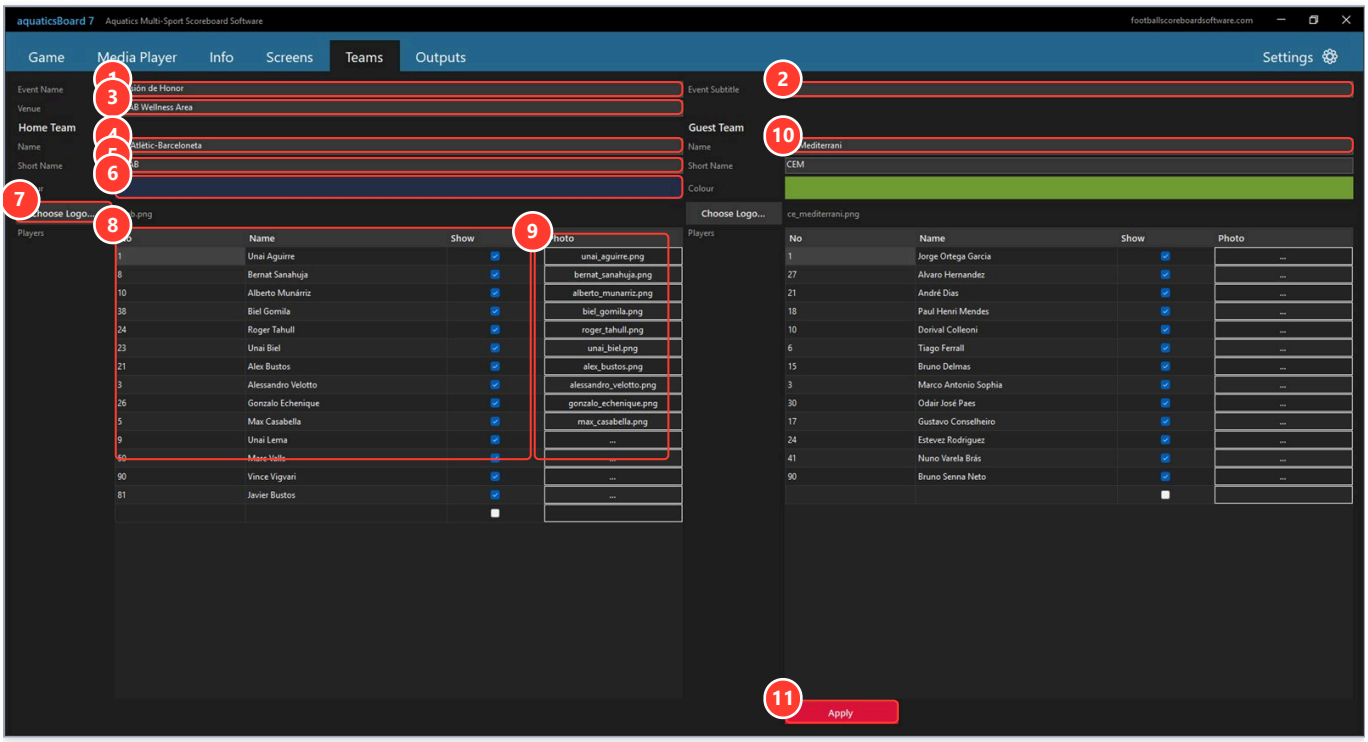


Figure 57. The Teams page

#	Control	What it does
1	**Event Name**	The competition or event (league, cup, tournament). Shown on the Intro screen and the CK graphics.
2	**Event Subtitle**	A second line for the event (round, group, final …).
3	**Venue**	The hall, ground or pool.
4	**Name (Home Team)**	The full team name for the boards.
5	**Short Name**	Short name or abbreviation (3–4 letters) for compact boards, the Ad board, the CK score bug and the team buttons of the Info page.
6	**Colour**	Click to choose the team colour. It is used for the team stripes, the team buttons and the graphics.
7	**Choose Logo…**	Choose a logo file (PNG, JPG, WEBP or SVG). The file is copied into *data\logos*; the file name is shown next to the button.
8	**Players**	The team list: **No** (up to 4 characters, e.g. 7, 07, 23A), **Name**, **Show** and **Photo** (next callout). Type into the empty last row to add a player. To remove a player, empty both the number and the name of the row (empty rows are dropped when you click Apply). Players with Show ticked appear as number buttons on the Game page, in the player panels, the player lists of the Info page, the team list graphics and the team slide.

#	Control	What it does
9	**Photo**	The player photo. A row without a photo shows **…**; **click** the cell to choose a picture (PNG, JPG, JPEG or WEBP). The file is copied into *data\media\players* and its name appears in the cell. **Right-click** the cell to remove the photo from the player (the copied file stays in the folder). Type the number and name of a new player first: the empty last row takes no photo. Like every change on this page, the photo is saved with **Apply**.
10	**Guest Team**	Name, Short Name, Colour, logo and Players of the guest team – the same fields as for the home team.
11	**Apply**	Saves everything on this page and updates the boards. **Changes are not saved until you click Apply.**

1. Type the event, venue and both teams.
2. Choose colours and logos.
3. Fill the team lists (or paste them row by row) and tick **Show** for the players of today.
4. Optionally click the **Photo** cell of a player to give the player a picture.
5. Click **Apply**.

Teams in the Different Kinds of Sport

Kind of sport	What “team” means on this page
Team sports with a clock (basketball, handball, football, hockey, water polo, beach soccer, Australian rules …)	Two teams with full team lists; numbers are used for fouls, penalties, cards and player panels on the Game page.
Set sports (volleyball, beach volleyball, footvolley, snow volleyball) and beach tennis	Two teams or pairs. For beach sports the name is usually the pair (e.g. *Surname / Surname*) and the team list holds the two or three players; sanctions on the Info page pick from it.
Cricket	Two teams with their players; the team list is used for the batter and bowler choices of the cricket panel and the batting and bowling cards.
Swimming and diving	No teams: the page holds the meet / event name, subtitle and venue and saves the competition (below). Swimmers, divers, heats and dive lists belong to the competition of the desk.

Swimming and Diving: the Competition Page

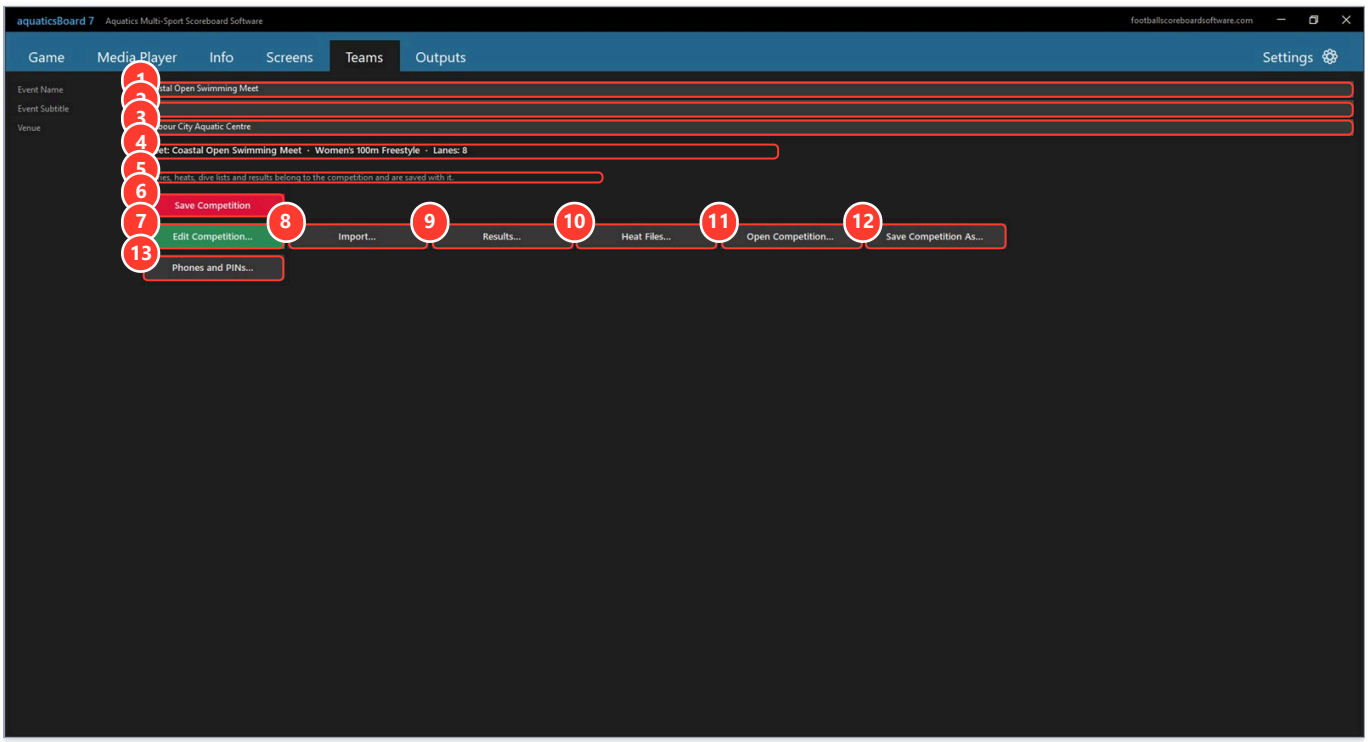


Figure 58. The Teams page of swimming: meet names and the competition

#	Control	What it does
1	**Event Name**	The meet or event name for the boards (Intro, results).
2	**Event Subtitle**	A second line (session, day, round).
3	**Venue**	The pool or centre.
4	**Summary**	Swimming: meet, the event called now and the number of lanes (e.g. *Lanes: 8*). Diving: event and number of judges. The line follows the desk: when you (or the remote) call another event, the summary changes at once.
5	**Note**	Entries, heats, dive lists and results belong to the competition and are saved with it.
6	**Save Competition**	Saves the names together with the entries, heats, dive lists and results of the running competition (they are also saved before another sport or a new match starts).
7	**Edit Competition...**	Opens the competition editor of swimming: meet, pool and sessions, events and entries, swimmers, clubs, records and officials. **Apply** starts the changes on the desk; results recorded meanwhile are kept.
8	**Import...**	Reads a Lenex file (SPLASH Meet Manager), a Hy-Tek Meet Manager meet (.hy3, .cl2, .zip) or its scoreboard start lists (.scb), or a CSV / Excel entry list. A preview shows what the file holds first (see *Swimming → Lenex and the Meet Managers*).
9	**Results...**	Result lists, start lists, timing sheets and the results book in the browser (print) or as HTML / CSV, and **Export Lenex...** for the meet manager or the federation.
10	**Heat Files...**	One results file per approved heat for the timing interface of SPLASH or Hy-Tek Meet Manager (see *Lenex and the Meet Managers*).
11	**Open Competition...**	Opens a competition saved before (with a summary first).
12	**Save Competition As...**	Saves the running competition (meet, heats and results) as a file, e.g. for another PC or as a copy.

#	Control	What it does
13	**Phones and PINs...**	The officials' phones and their seat PINs (see *Officials' Phones and PINs*).

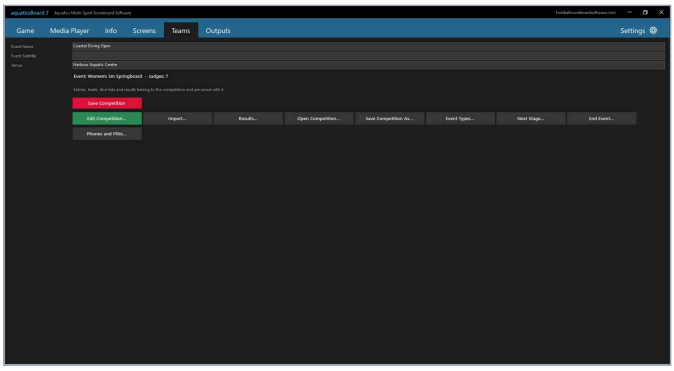


Figure 59. The same page for diving (event and judges)

The Teams Page of Each Sport

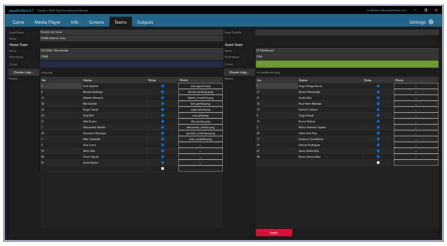


Figure 60. Water Polo

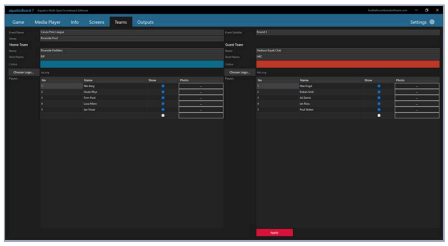


Figure 61. Canoe Polo

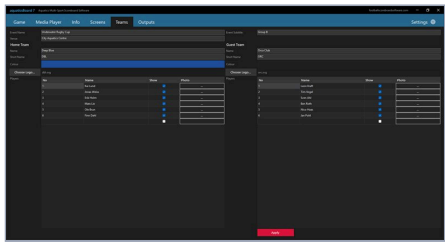


Figure 62. Underwater Rugby

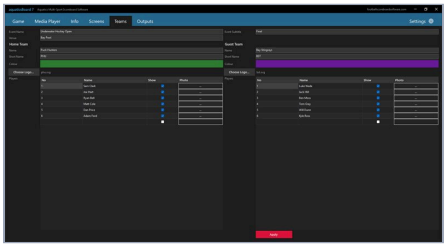


Figure 63. Underwater Hockey

Player Photos and Numbers

Numbers may contain up to four characters (e.g. 7, 07, 23A). A player typed on the Info page that is not in the list is added to it automatically.

Player photos are set in the **Photo** column of the team list:

1. Make sure the player has a number and a name in the list.
2. Click the player's **Photo** cell (it shows **...** while there is no photo).
3. Choose a picture file (PNG, JPG, JPEG or WEBP) in the file dialog. aquaticsBoard 7 copies it into *data\media\players* under a new name made of the sport, the team, the number and a time stamp, so the original file can be moved or deleted afterwards. The cell shows the file name.
4. Click **Apply** to save the team list with the photo.

To take a photo away, **right-click** the Photo cell: it shows **...** again (click Apply to save).

The photos are used by **Show With Picture** in the Goal, Card and Substitution rows of the Info page, by the team lists when **Show Pictures** is ticked, and by the player intro. A player without a photo is shown with number and name only.

> **Tip** Untick **Show** for players who are not playing today instead of deleting them: they disappear from the number buttons, panels, player lists and team lists but stay in the list for the next match.

8 Outputs

The Outputs page sets up the four board windows. Each output has one row with its settings and a second row with the window position. Every change is saved at once and applied to the open window; at the next start the program opens the board windows again exactly as they were. How to bring the board onto an LED screen, a video processor or a sender card is explained step by step in the next chapter, *Sending the Board to the LED Screen*.

The Output Rows

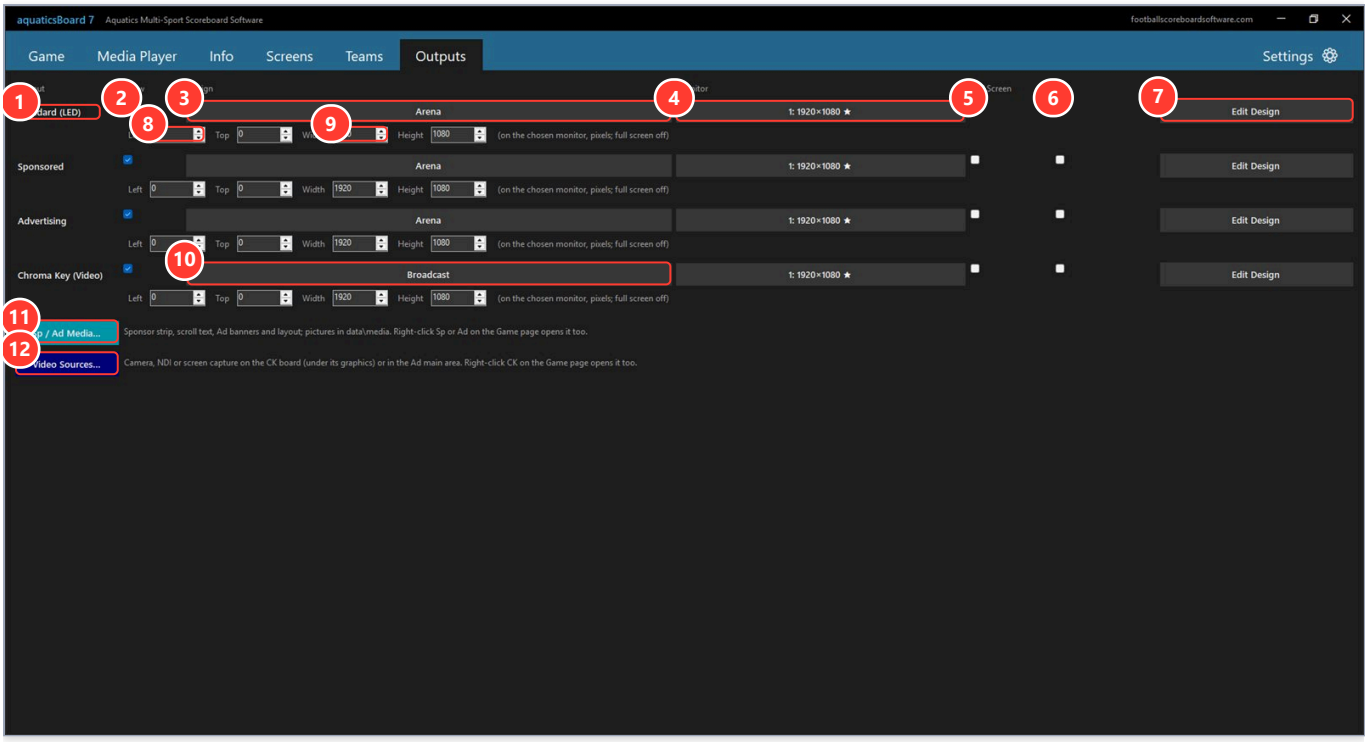


Figure 64. The Outputs page

#	Control	What it does
1	Output	**Standard (LED)** = St, **Sponsored** = Sp, **Advertising** = Ad, **Chroma Key (Video)** = CK.
2	Show	Opens or closes the output window – the same as the St / Sp / Ad / CK buttons on the Game page. An output that is on opens again by itself at the next start of the program.
3	Design	The design of this output for the running sport (menu below). Own designs are marked with ★. Each sport remembers its own choice.
4	Monitor	The monitor of the window: number, resolution, ★ = the main monitor (menu in the next chapter). With two or more monitors a new output opens on monitor 2.
5	Full Screen	Ticked: the board fills the chosen monitor. Not ticked: the window uses Left / Top / Width / Height.
6	NDI	Sends this output as an NDI source (30 frames per second). The status (fps or an error) appears next to the box. The output window must be open (Show).
7	Edit Design	Opens the design editor with the design and the current screen of this output.
8	Left / Top	Position of the window on the chosen monitor in pixels (0 / 0 = top left corner of that monitor). Only when Full Screen is off. See *Sending the Board to the LED Screen*.

#	Control	What it does
9	**Width / Height**	Window size in pixels (at least 160 × 90), for LED walls and strips with an unusual resolution (e.g. 1920 × 480 or 1280 × 1024). The board scales to the window.
10	**CK design**	The CK output uses the Broadcast master by default, the other outputs the Arena master.
11	**Sp / Ad Media...**	Opens the Sp / Ad Media dialog: sponsor strip, scroll text, Ad layout, banners and the advertising area (see the chapter *Sp / Ad Media*).
12	**Video Sources...**	Opens the Video Sources window: a camera, an NDI source or a screen capture on the CK board or in the Ad main area (see the chapter *Video Sources*).

Choosing a Design

Click the design field of a row to open the list of designs of the running sport:

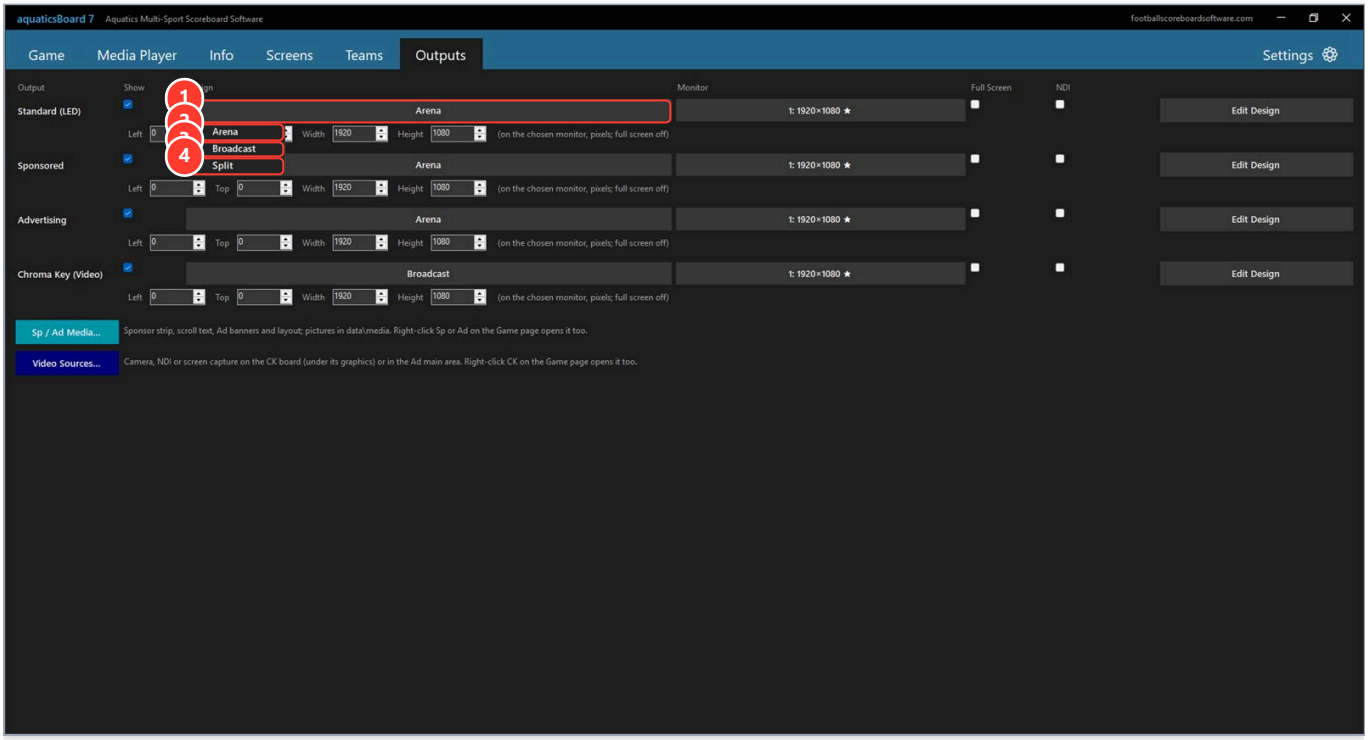


Figure 65. The design list of the Standard (LED) output

#	Control	What it does
1	**Design field**	Shows the design in use; click to open the list.
2	**Arena**	Master design: black LED look with big digits and corner logos. The default of St, Sp and Ad.
3	**Broadcast**	Master design: header strip and team rows. The default of CK (score bug and broadcast graphics).
4	**Split**	Master design: team panels in the team colours left and right of a centre column.

Own designs (saved copies, see *Board Designs*) follow the masters in the list, marked with ★. The board changes at once; the choice is kept per sport and output.

Background Video and Picture

The two icons at the bottom right of the Game page put a video or a picture behind the St, Sp and Ad boards. The first video (MP4, WEBM, MOV) and the first picture (PNG, JPG, WEBP) in *data\media\background*, in alphabetical order, are used. When the folder is empty, clicking the icon asks for a file and copies it there. The CK output never gets a background, so it can always be keyed.

Use a dark, calm video so the digits stay readable. Most pictures in this guide were taken with a dark animated background video; the board on the right shows the same design without it:

With and Without Background



Figure 66. St board with the background video



Figure 67. The same board without background (the design's own black)

NDI

NDI sends a board over the network to vMix, OBS, CasparCG, TriCaster or any other NDI receiver without a capture card. The NDI library is shipped with the program; nothing else has to be installed.

- Tick **NDI** for an output on this page, or click **NDI** on the right strip of the Game page to switch NDI on or off for every open output.
- NDI captures the output window, so the output must be open. It may sit on a second monitor; if you only need NDI, use a small window position (Full Screen off).
- The CK output is sent with transparency (alpha) instead of the green background: put it as an overlay on top of the camera in the receiver, no keyer needed.
- The source names are <*product*> *St*, … *Sp*, … *Ad* and … *CK* on the PC name.

NDI Status

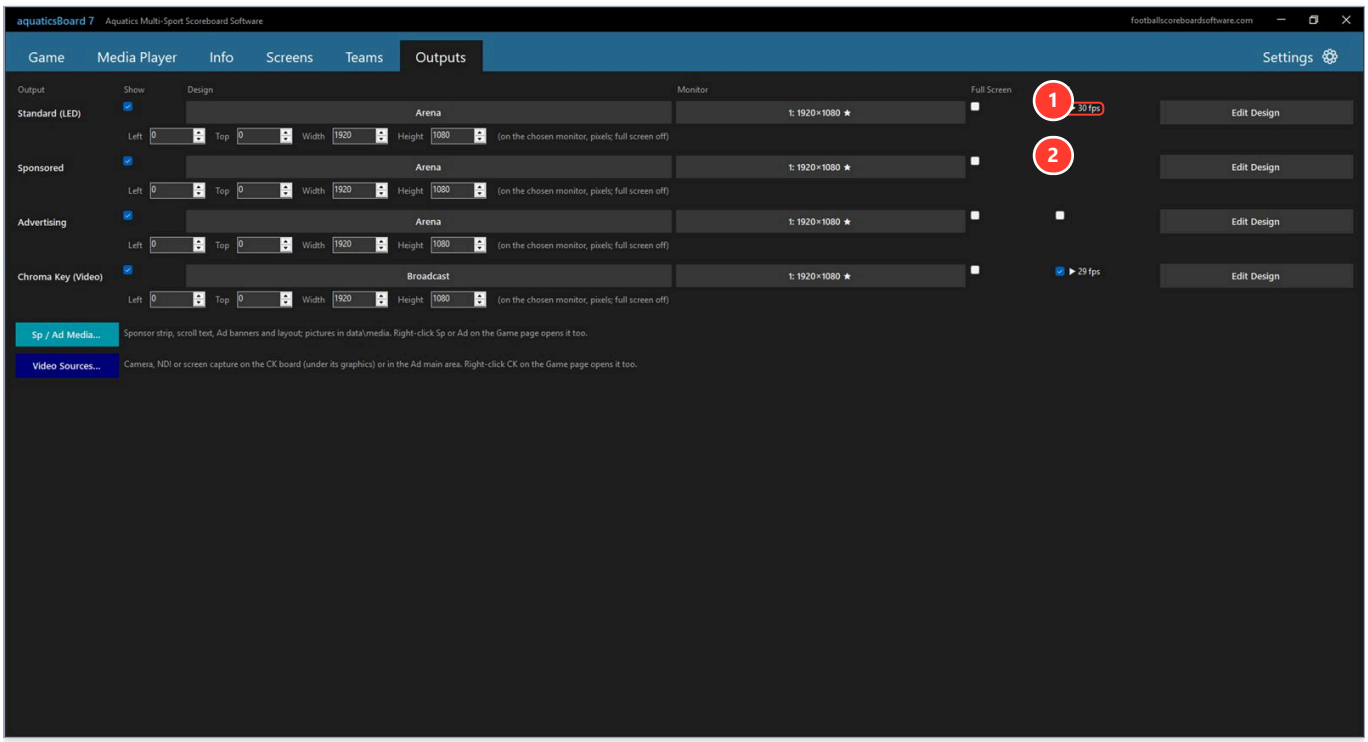


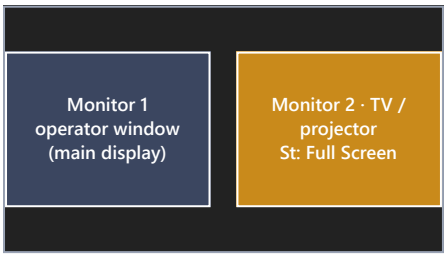
Figure 68. NDI switched on for the Standard (LED) output

#	Control	What it does
1	**NDI with status**	▶ **30 fps**: the output is sent and the frame rate reached. An error text instead (for example when the window is closed) tells you why nothing is sent.
2	**NDI off**	An empty box: this output is not sent over NDI.

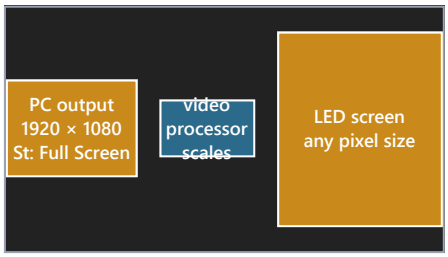
9 Sending the Board to the LED Screen

This chapter answers the question customers ask most: **how does the board get onto the LED screen?** Whether the LED is driven by a second monitor output, a video processor (scaler) or an LED sender card, the method is always the same: Windows sees the device as one more monitor, and the Outputs page of aquaticsBoard 7 puts the board window on that monitor – either filling it (**Full Screen**) or on an exact pixel area (**Left / Top / Width / Height**).

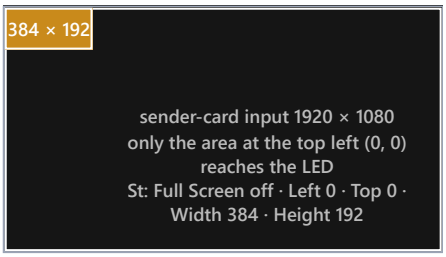
> **Note** **This is a one-time setting.** Everything on the Outputs page is saved at once. At every later start aquaticsBoard 7 opens the board again by itself on the same monitor at the same place. You do not have to repeat it before each match – only when the LED, the processor, the sender card or the monitor arrangement changes.



Second monitor, projector or TV: the board fills monitor 2



Video processor: the full signal goes in, the processor scales it to the LED



Sender card: the board sits exactly on the pixel area the card sends to the LED

How Windows Sees the Outputs

The program never talks to the LED hardware directly. Whatever is connected to a video output of the PC – a monitor, a TV, a projector, an LED video processor or an LED sender card – appears in Windows as a monitor. The operator window stays on the main monitor; the board window goes to the LED monitor.

1. Connect the device to a free video output of the graphics card (HDMI, DVI or DisplayPort; an adapter cable is fine).
2. Press `Win` + `P` and choose **Extend**. (*Duplicate* would show the operator window on the LED; *Second screen only* would switch the operator monitor off.)
3. Open the Windows display settings (right-click the desktop → **Display settings**). The monitors are shown as numbered boxes; **Identify** shows the numbers on the screens. Drag the boxes so that their arrangement matches the desk – it only decides where the mouse crosses from one monitor to the other.
4. Click the LED monitor's box and set **Display resolution** to the resolution the processor or sender card expects (for most devices 1920 × 1080) and **Scale** to **100 %**.
5. Keep the operator monitor as the main display (*Make this my main display*), so that new windows and the taskbar stay on the desk.

> **Note** Scale 100 % on the LED monitor matters: aquaticsBoard 7 places the board in the pixels Windows reports for that monitor. At 100 % these are the real pixels of the signal. At 125 % or 150 % Windows reports a smaller monitor (for example 1536 × 864 instead of 1920 × 1080) and enlarges the picture, so the board becomes soft and the Left / Top / Width / Height values no longer match the LED's pixel map.

On the Outputs page the **Monitor** list shows every monitor with its number and resolution; ★ marks the main display. The numbers follow the order in which Windows lists the monitors, which is not always the number shown by *Identify* – pick the LED monitor by its resolution when in doubt.

The Monitor List

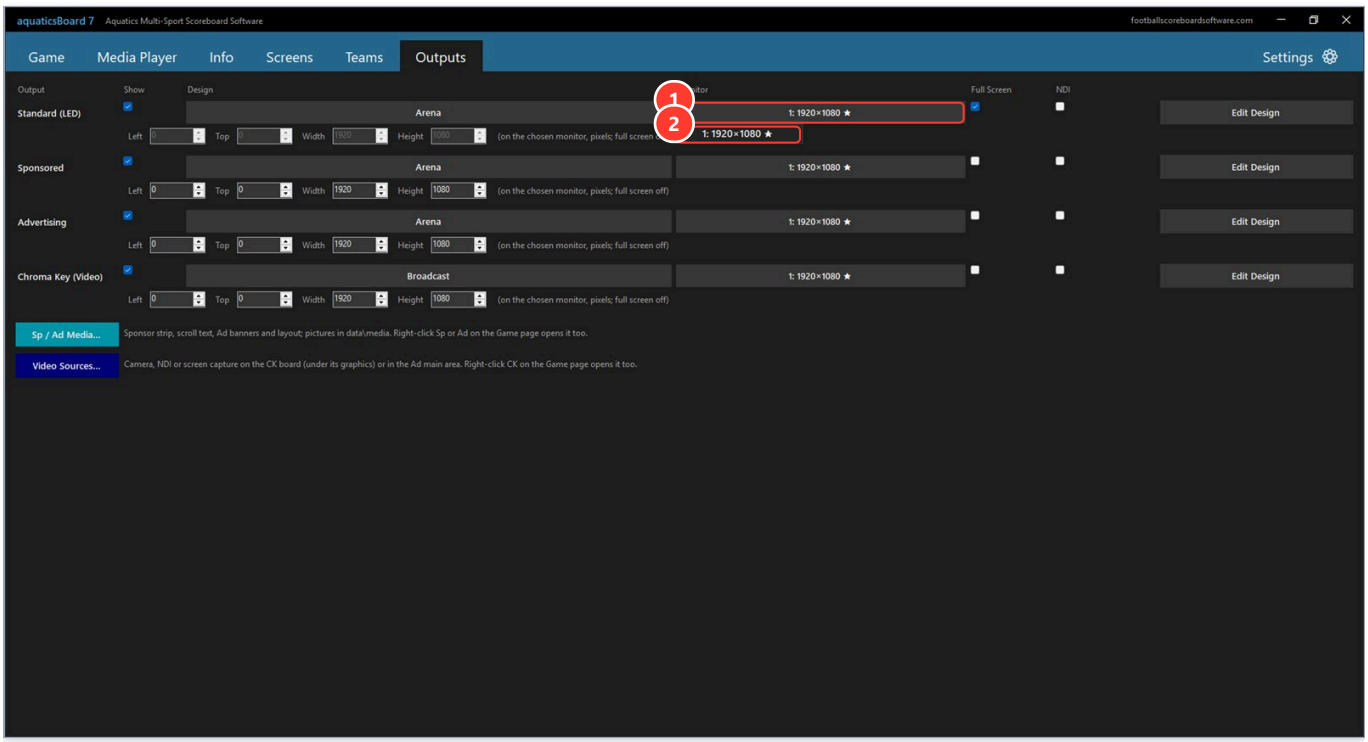


Figure 69. The Monitor list of the Standard (LED) row (this PC has one monitor; with more monitors each one is listed)

#	Control	What it does
1	**Monitor field**	Shows the chosen monitor; click to open the list.
2	**Monitor entries**	*number: width* × *height*, ★ = the main display. Click an entry: the board moves there at once and the choice is saved.

Second Monitor, Projector or TV

A monitor, TV or projector shows the whole picture of its input, so the board simply fills it:

1. Open the **Outputs** page.
2. In the **Standard (LED)** row choose the second monitor in **Monitor** (for example *2: 1920×1080*).
3. Tick **Full Screen**.
4. Tick **Show** (or click **St** on the Game page). The board fills the second monitor at once.

Full Screen on the Second Monitor

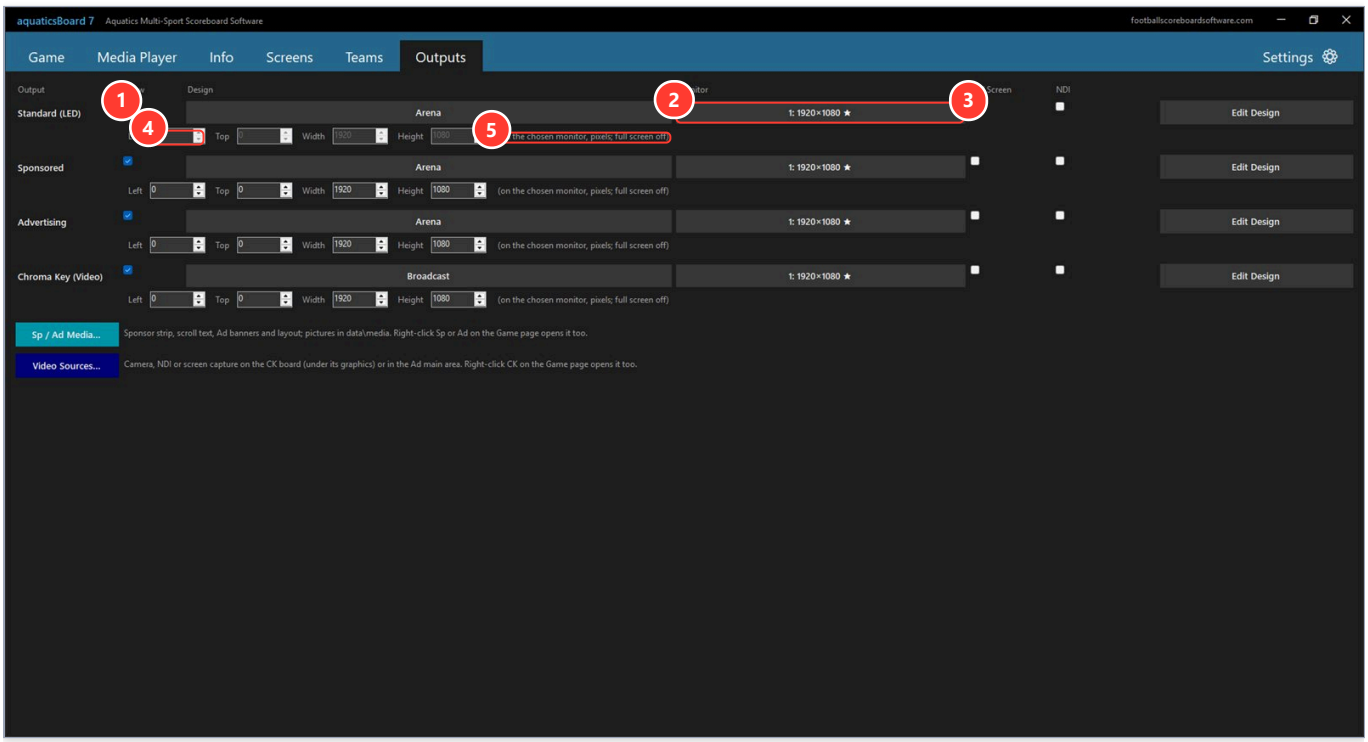


Figure 70. Standard (LED) on the whole monitor (Full Screen ticked)

#	Control	What it does
1	**Show**	Opens the St board window at once. It stays on, and the program opens it again by itself at every start.
2	**Monitor**	The display the board goes to: number, resolution, ★ = the main display of Windows. Choose the display that is the TV, the video processor or the sender card.
3	**Full Screen**	**Ticked**: the board fills the whole chosen monitor, whatever its resolution. The four position fields below are greyed out.
4	**Left**	Left, Top, Width, Height: used only when Full Screen is off.
5	**Hint**	Reminder: the values are pixels on the chosen monitor and apply when Full Screen is off. A value is applied when you press `Enter`, leave the field or click its arrows.

> **Tip** To try the settings on a PC with only one monitor, untick Full Screen and give the board a small area (for example Left 1000, Top 100, Width 800, Height 450): the board then sits next to the operator window instead of covering it.

LED Video Processor (Scaler)

An LED video processor (also called scaler or video controller) takes a normal video signal – usually 1920 × 1080 – and scales it to the pixel size of the LED screen, whatever that is (for example 768 × 384 or 2560 × 640). The scaling or cropping is set in the processor's own menu or software.

1. Set the Windows resolution of the processor's output to the processor's input resolution (often 1920 × 1080, 60 Hz), Scale 100 %.
2. On the Outputs page choose that monitor for **Standard (LED)** and tick **Full Screen** and **Show**.
3. In the processor, scale the whole input to the LED (or choose the part of the input it should show).

When the processor takes only a fixed part of its input (for example the top 1920 × 480 of a 1920 × 1080 signal for an LED strip), untick Full Screen and type that part: Left **0**, Top **0**, Width **1920**, Height **480**. The design adapts its layout to the shape of the window:

A 1920 × 480 Strip

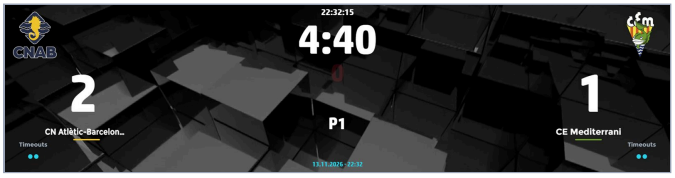


Figure 71. The St board in a 1920 × 480 area (Full Screen off, Left 0, Top 0, Width 1920, Height 480)

LED Sender Card (Direct Connection)

An LED sender card (sending card or LED controller box) is connected straight to the PC and does **not** scale. It takes a pixel area of its HDMI / DVI input – usually starting at the top left corner – and sends exactly those pixels to the LED cabinets; the rest of the picture is ignored. Which area it takes and how the cabinets are arranged (the "LED mapping") is set in the LED vendor's software; that part belongs to the LED supplier.

So the board must sit exactly on that area, pixel for pixel:

1. Set the Windows resolution of the sender card's output to what the card expects (often 1920 × 1080), Scale 100 %.
2. On the Outputs page choose the sender card's monitor for **Standard (LED)**.
3. Untick **Full Screen**.
4. Type **Left 0** and **Top 0** (the corner where the card's mapping starts – if the vendor software starts the LED elsewhere, type that position).
5. Type the LED size in pixels as **Width** and **Height**, for example 384 × 192.
6. Tick **Show**. The board appears on the LED at once.

LED screen	Full Screen	Left	Top	Width	Height
3 × 2 cabinets of 128 × 96 pixels	off	0	0	384	192
Wall of 768 × 384 pixels	off	0	0	768	384
Long strip of 1920 × 480 pixels	off	0	0	1920	480
Mapping starts at x 0, y 200 in the vendor software	off	0	200	LED width	LED height
LED of exactly 1920 × 1080	on	–	–	–	–

The Sender-Card Area on the Outputs Page

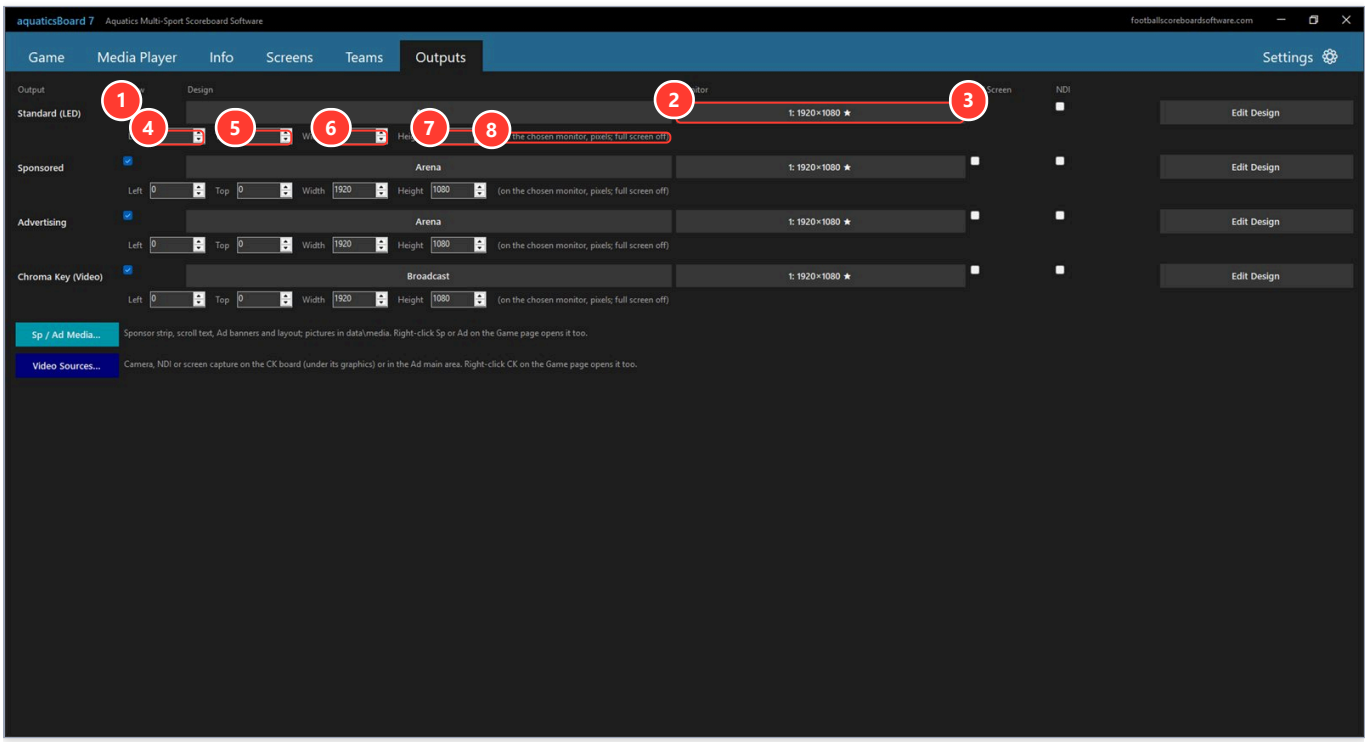


Figure 72. Standard (LED) on a 384 × 192 area at the top left of the sender card's monitor

#	Control	What it does
1	**Show**	Opens the St board window at once. It stays on, and the program opens it again by itself at every start.
2	**Monitor**	The display the board goes to: number, resolution, ★ = the main display of Windows. Choose the display that is the TV, the video processor or the sender card.
3	**Full Screen**	**Not ticked**: the board uses the rectangle of the four fields below instead of the whole monitor.
4	**Left**	Distance from the left edge of the chosen monitor in pixels. **0** = the left edge (sender cards map the LED from there).
5	**Top**	Distance from the top edge of the chosen monitor in pixels. **0** = the top edge.
6	**Width**	The width of the LED screen in pixels (here 384). At least 160.
7	**Height**	The height of the LED screen in pixels (here 192). At least 90.
8	**Hint**	Reminder: the values are pixels on the chosen monitor and apply when Full Screen is off. A value is applied when you press `Enter`, leave the field or click its arrows.



Figure 73. The board in the 384 × 192 window: the design arranges itself for the small screen

Several Outputs

Each of the four outputs (St, Sp, Ad, CK) has its own row with its own monitor and area, so one PC can drive several screens at the same time, for example:

- St with Full Screen on the LED processor (monitor 2), Sp with Full Screen on a TV in the hall (monitor 3).
- Two LED screens on one sender card: St at Left 0, Top 0, Width 384, Height 192 and Ad at Left 384, Top 0 with the size of the second LED – the vendor software maps both areas.
- CK as a small window on the operator monitor (Full Screen off) when it is only needed as an NDI source for a vision mixer.

Several outputs may share a monitor; their areas should not overlap.

Pixels, Monitors and Window Scaling

- Left, Top, Width and Height are pixels **on the chosen monitor**: 0 / 0 is the top left corner of that monitor, wherever it stands in the Windows arrangement (also left of or above the main display). Width and Height are at least 160 × 90.
- A value is applied when you press `Enter`, leave the field or click its arrows; the board moves at once.
- The program remembers the monitor by its Windows name as well as by its number. If Windows changes the order of the monitors (after a driver update or when a monitor is added), the board still finds its monitor.
- If the chosen monitor is not connected at the start, the board opens on the last monitor of the list (on a PC with one monitor: on the operator screen). Connect the device or switch it on: when Windows reports the change, the board moves back to its place by itself – also when you change a resolution while the program runs.
- A board on another monitor than the operator window stays on top of other windows and of the taskbar, and the mouse pointer is hidden over it. A board on the operator's own monitor is a normal window (the operator window can come in front of it).
- Set Scale to 100 % for the LED monitor in the Windows display settings (see above); the operator monitor may use any scale.

A One-Time Setting

- **Saved automatically.** There is no Save button: every change on the Outputs page (Show, Monitor, Full Screen, Left / Top / Width / Height, design) is saved at once in *data\config\outputs.json*.
- **Restored at every start.** When aquaticsBoard 7 starts, every output that was on opens again by itself on the same monitor, at the same place, with the same design. Start the program and the board is on the LED.
- **Not before every match.** Repeat the setting only when the hardware changes: another LED size or mapping, another processor or sender card, another Windows resolution, another cable / graphics output, or a new PC.

- **New PC or reinstallation.** Copy the *data* folder (see *Files and Folders*); the outputs open at the same place on a PC with the same monitor arrangement.

Troubleshooting the LED Output

Problem	What to do
The board is on the wrong screen.	Choose the other entry in **Monitor** (pick it by its resolution). Check that Windows uses **Extend** (`Win` + `P`).
The operator window appears on the LED.	Windows is in *Duplicate* mode or the LED is the main display: choose **Extend** and make the operator monitor the main display in the Windows display settings.
Black borders around the board on the LED.	Sender card: Width and Height must be exactly the LED size in pixels, Left / Top the start of the mapping. Video processor: use Full Screen and let the processor scale the whole input.
Part of the board is cut off.	The area is larger than the LED mapping, or Left / Top are wrong, or the Windows resolution differs from the one the device expects. Check the values against the LED vendor software.
The board looks soft or blurry.	Set Scale to 100 % and the device's own resolution for the LED monitor in the Windows display settings. A processor that scales a small signal up also softens it.
The taskbar or another window covers the board.	Put the board on its own monitor (not the operator's): there it stays on top. On the operator's monitor it is a normal window.
The mouse pointer shows on the LED.	The pointer is hidden over a board on its own monitor; move the mouse back to the operator monitor. Arrange the monitors in the Windows display settings so that the LED monitor is not in the way of the mouse (for example diagonally below).
The board did not open at the start.	Is **Show** ticked for the output? Is the device switched on and connected? Without its monitor the board opens on the last monitor of the list and moves back as soon as Windows reports the monitor again.
The board is on the monitor but the LED stays dark.	Check the input selection of the processor, and the sender card, its mapping and brightness in the LED vendor's software – these are outside aquaticsBoard 7.

10 Media Player

The **Media Player** page puts videos, pictures, sound files and web pages on the board instead of the scoreboard: a walk-on video, sponsor clips, a half-time slide show, a stream or a YouTube link. It has 20 playlists. A clip plays on the St board and, when they are open, also on the Sp and Ad boards (without sound there); the CK output always keeps its graphics.

- The St output must be open (Outputs page or the St button); otherwise the page asks you to switch it on first.
- Playback goes on while you work on other pages. While a clip plays, the **Settings** tab shows the time left (▶ m:ss) and the taskbar button shows a progress bar.
- The scoreboard comes back with the **Game** tab, with Stop / Finish, at the end of a single clip, and – with *Return to the Scoreboard* on – at the end of the playlist.
- A picture stays on the board for the **Image Play Duration** of the Settings page (default 5 seconds), then the playlist goes on.
- While something plays, the playlist cannot be changed (Add Clip, Delete Clip, the playlist buttons and Delete Playlist are hidden or blocked).

The Media Player Page

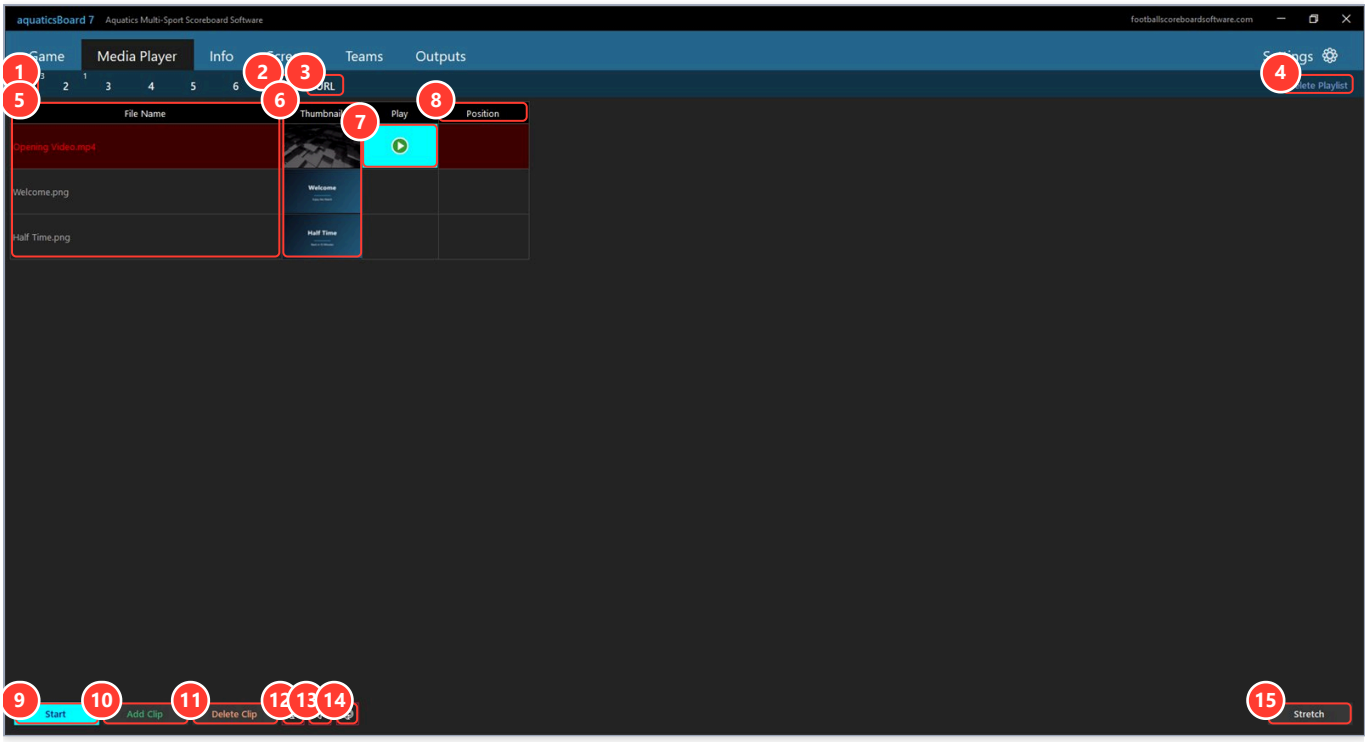


Figure 74. The Media Player page with three clips in playlist 1 (playlist 2 holds one clip)

#	Control	What it does
1	**Playlists 1 – 6**	Six playlist buttons; the small number above a button is the number of clips in that playlist. The open playlist has the dark colour. Not while something plays.
2	**Playlists 7 – 20**	Opens the list of playlists 7 to 20 (with their clip counts); the button then shows the chosen number.
3	**URL**	Opens the list of web addresses (web pages, streams, YouTube links) to show on the board (below).

#	Control	What it does
4	**Delete Playlist**	Removes every clip from the open playlist after a confirmation. The files themselves stay where they are.
5	**File Name**	The clips of the playlist. Videos in white, pictures in grey, a file that no longer exists in red (it is skipped). The tooltip shows the full path. Drag a row up or down to change the order.
6	**Thumbnail**	A small picture of the clip (videos: the Windows thumbnail).
7	**Play**	The selected row has a turquoise ▶ button: it plays this one clip on the board (with Repeat on: again and again).
8	**Position**	While a clip plays: the time left (m:ss).
9	**Start**	Plays the playlist from the selected row to the end. Start switches Repeat off. While the playlist runs the button says **Finish** and stops it.
10	**Add Clip**	Adds videos (MP4, M4V, WEBM, MOV, MKV, OGV), sound files (MP3, M4A, AAC, WAV, OGG) and pictures (BMP, GIF, JPG, PNG, WEBP). The files are used where they are – keep them in a folder that stays.
11	**Delete Clip**	Removes the selected row from the playlist (the file stays).
12	**Return to the Scoreboard**	Green frame = on: when the playlist reaches its end the board shows the scoreboard again. Red frame = off: the playlist starts again from the top.
13	**Sound On / Off**	Green frame = the sound of the clips plays. Off by default.
14	**Auto Repeat**	Green frame = the playing clip starts again when it ends (Play of one clip).
15	**Display Mode**	How a clip fills the board (list below).

While a Clip Plays

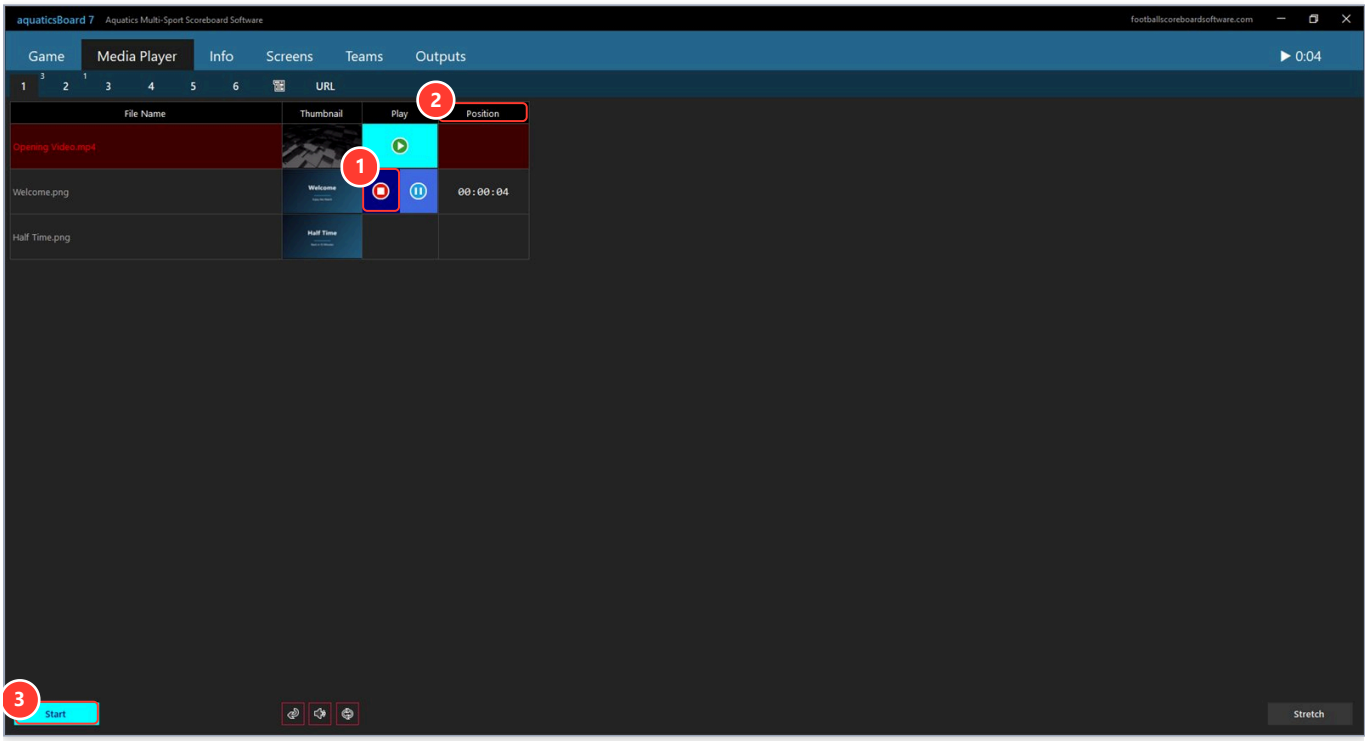


Figure 75. A slide of the playlist on the board

#	Control	What it does
1	**Stop ■ / Pause ▮▮**	On the playing row the Play cell turns into **Stop** (back to the scoreboard) and **Pause** (pause / continue).
2	**Position**	The time left of the playing clip.
3	**Start**	Starts the playlist (Finish while the playlist runs).

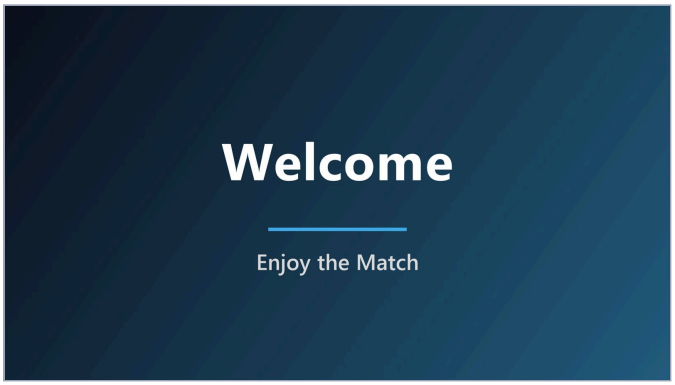


Figure 76. The St board showing the slide “Welcome” of the Media Player

Select another row while a clip plays: its Play cell offers ▶ to switch straight to that clip.

Display Modes

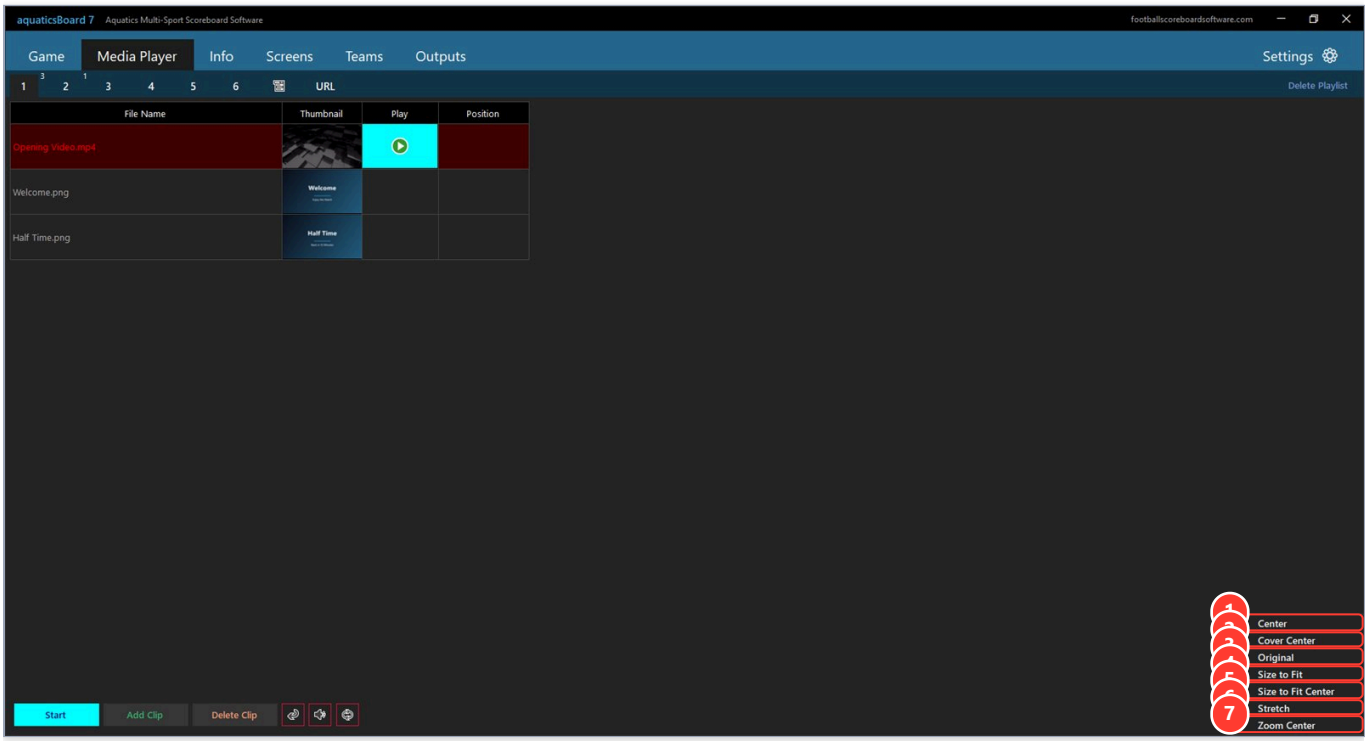


Figure 77. The display modes of the Media Player

#	Control	What it does
1	**Center**	Original size in the middle of the board (a large clip is cut at the edges).
2	**Cover Center**	Fills the board, keeps the shape, cuts the edges that do not fit.
3	**Original**	Original size from the top left corner.

#	Control	What it does
4	Size to Fit	The whole clip as large as possible, from the top left corner (bars where the shape differs).
5	Size to Fit Center	The whole clip as large as possible, in the middle.
6	Stretch	Fills the board exactly; a clip of another shape is distorted. The default.
7	Zoom Center	Fills the board, keeps the shape, cuts the edges (like Cover Center).

Playlists 7 to 20

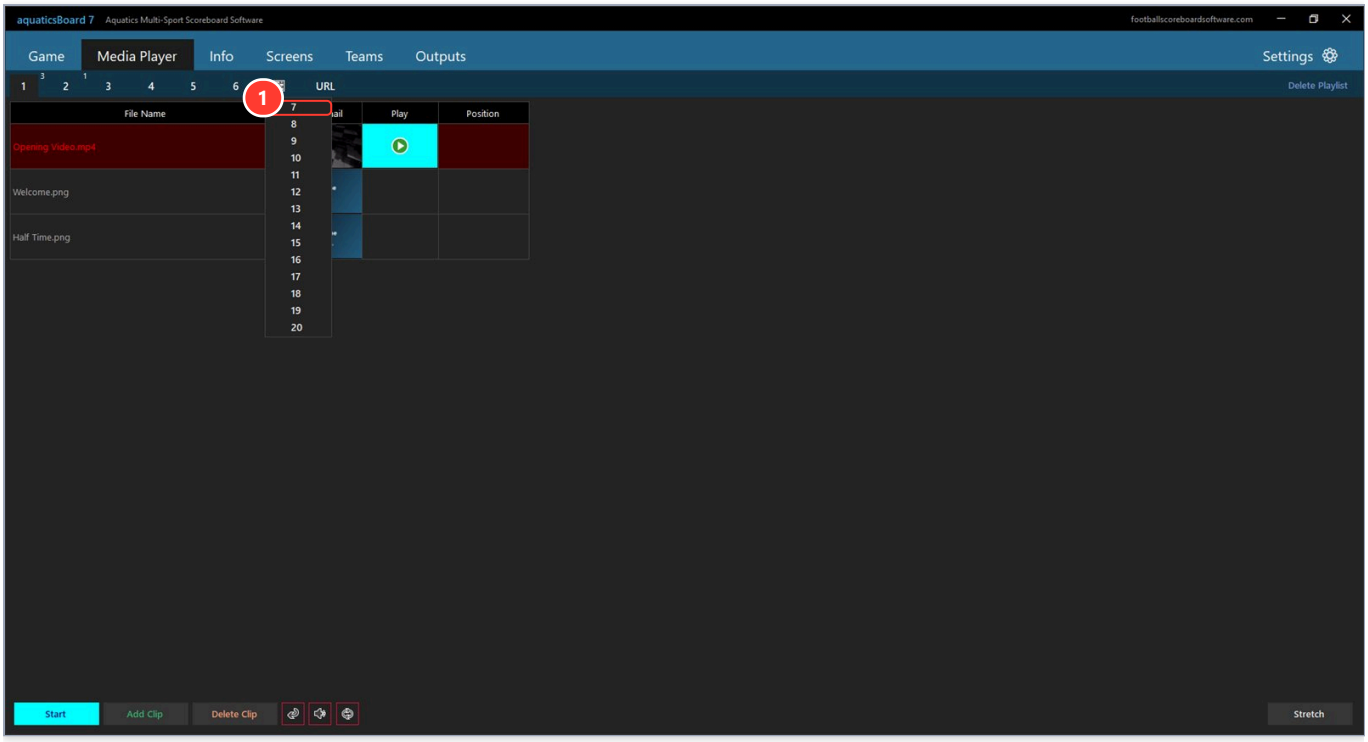


Figure 78. The list of playlists 7 to 20

#	Control	What it does
1	Playlist entries	Click a number to open that playlist; a number in brackets is its clip count.

Web Pages and Streams (URL)

The URL list holds web addresses that the board can show full screen: a web page, a live stream page or a YouTube link (it plays the video). The list is saved by itself.

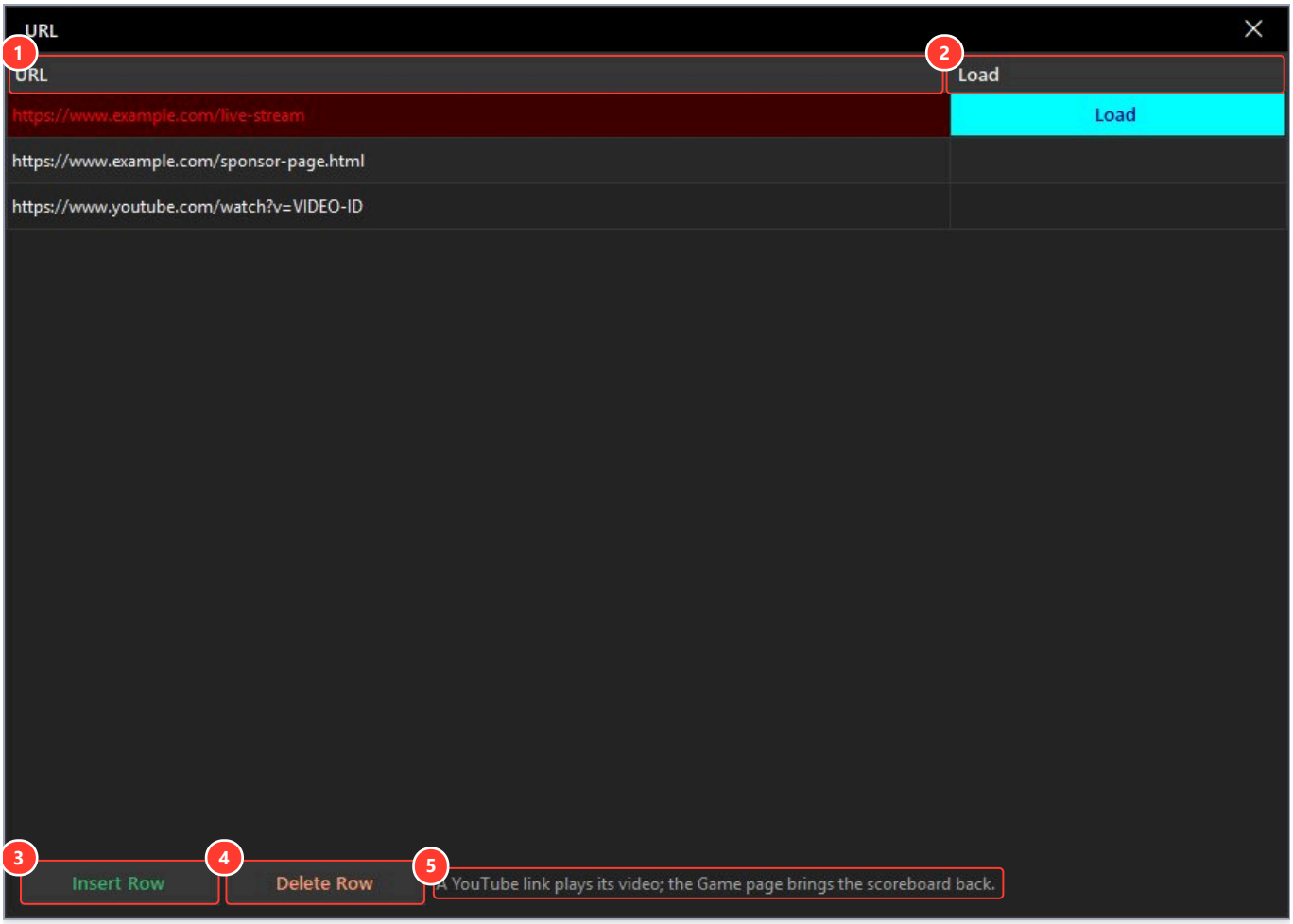


Figure 79. The URL list

#	Control	What it does
1	URL	One address per row. Click a cell and type (or press `F2`).
2	Load	The **Load** button of the selected row shows that address on the board.
3	Insert Row	Inserts an empty row above the selected one (or at the end) and starts editing it.
4	Delete Row	Removes the selected row.
5	Hint	A YouTube link plays its video; the **Game** tab brings the scoreboard back.

Media Player from the Remote Control and the Keyboard

The remote control has a **Media Player** block at the end of its panel: the playlist numbers, **Start / Finish**, **Pause**, **Next Clip** and **Back to the Scoreboard**, with a line that shows what plays and the time left. Starting a playlist from the phone opens the Media Player page on the PC.

Command (POST /api/command)	What it does
media.start [1–20]	Opens the playlist (the given number, or the open one) and plays it from the first clip.
media.stop	Back to the scoreboard.
media.pause	Pause / continue.
media.next	The next clip of the running playlist.

Command (POST /api/command)	What it does
media.repeat, *media.volume*, *media.return* [on|off]	Auto Repeat, Sound, Return to the Scoreboard (without a value: switch over).

GET /api/media returns the state (playlist, what plays, time left, the switches). In the keyboard shortcut editor two Media Player actions can get a key (no key by default): **Start / Finish** of the playlist and **Back to the Scoreboard**.

The Media Player Block of the Remote

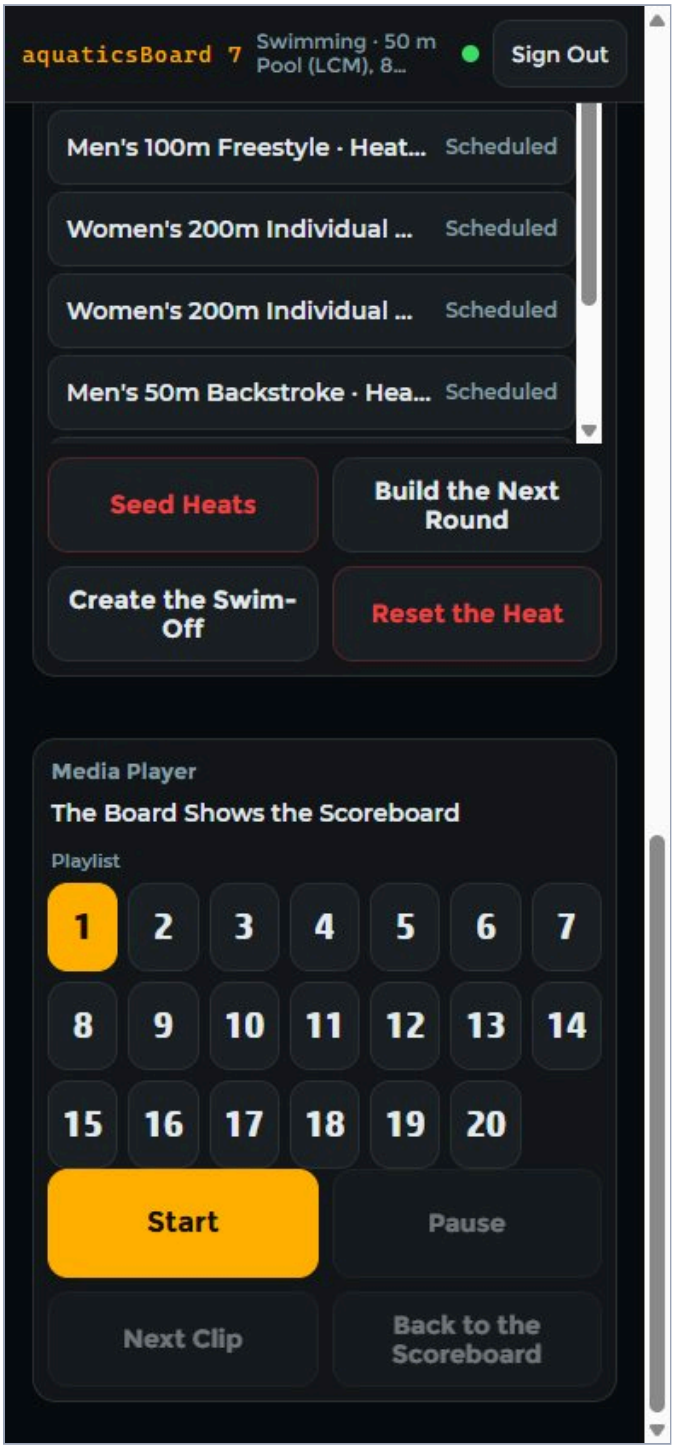


Figure 80. The Media Player block at the end of the remote panel (phone)

11 Video Sources

The **Video Sources** window puts a live picture on the CK board (under the CK graphics) or into the main area of the Ad board: a **camera** (USB webcam, HDMI capture device), an **NDI source** from the network (a camera, a vision mixer, another PC) or a **screen capture** of a part of the desktop. Open it with **Video Sources…** on the Outputs page or with a right-click on **CK** on the Game page.

- One source per board. Closing the board window stops its source.
- The window remembers camera, format, NDI source, capture area and display mode per board and shows them again the next time; a source never starts by itself after a restart – click Start (and Show) again.
- The board window must be open (CK or Ad) for Show.

Camera

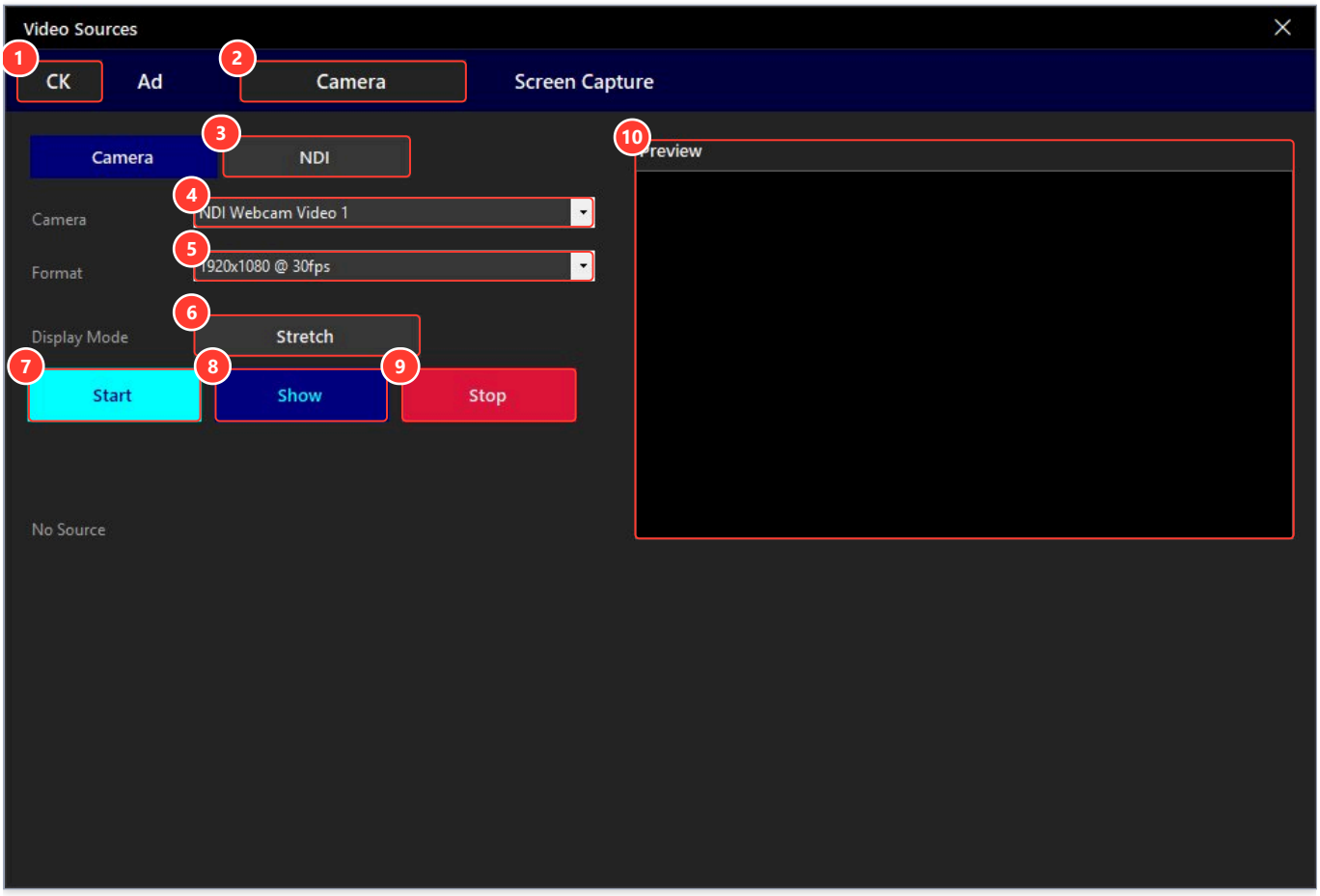


Figure 81. Video Sources – Camera

#	Control	What it does
1	CK / Ad	The board the source goes to: **CK** (the whole window, under the CK graphics) or **Ad** (the main area of the Ad board). Each board has its own source and settings.
2	Camera / Screen Capture	The two pages: **Camera** (a camera or an NDI source) and **Screen Capture** (a part of the desktop).
3	Camera / NDI	The kind of live source on this page: a camera of the PC or an NDI source.
4	Camera	The cameras and capture devices Windows sees (“Searching…” while the list is built).

#	Control	What it does
5	**Format**	Size and frame rate the camera offers (for example *1920x1080 @ 30fps*).
6	**Display Mode**	How the picture fills the board area: the seven modes of the Media Player (Stretch, Cover Center, Size to Fit …).
7	**Start**	Starts the source and shows it in the **Preview** on the right (for a screen capture it goes straight to the board).
8	**Show**	Puts the started source on the board.
9	**Stop**	Stops the source; the board shows its own content again.
10	**Preview**	The picture of the source before (and while) it is on the board.

NDI Source

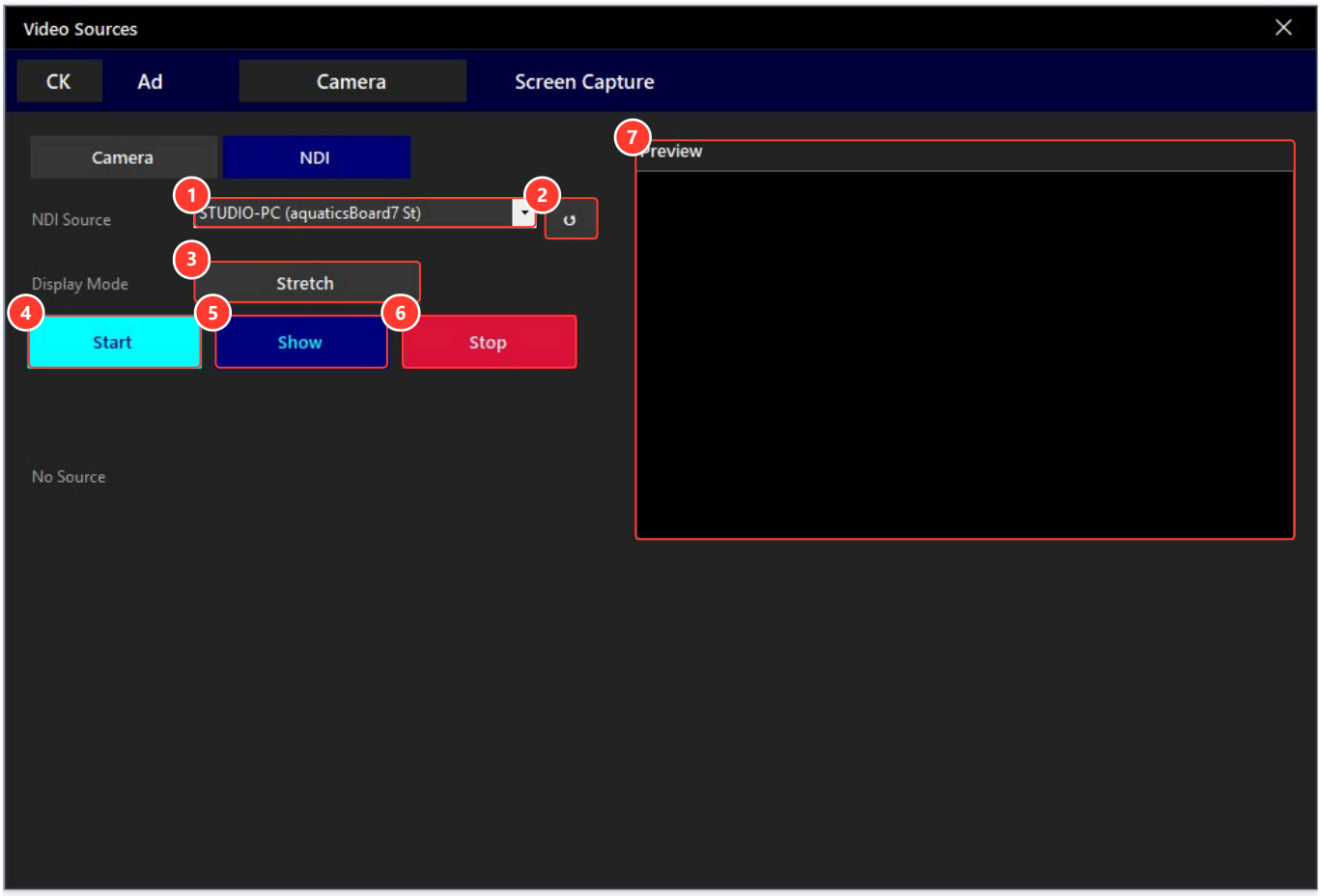


Figure 82. Video Sources – NDI (here the program's own St output as the source)

#	Control	What it does
1	**NDI Source**	The NDI sources found in the local network, named *COMPUTER (source)*. The video is received in the highest quality, without sound.
2	**Refresh** ↺	Searches the network again (for a source that was started later).
3	**Display Mode**	How the picture fills the board area: the seven modes of the Media Player (Stretch, Cover Center, Size to Fit …).
4	**Start**	Starts the source and shows it in the **Preview** on the right (for a screen capture it goes straight to the board).

#	Control	What it does
5	**Show**	Puts the started source on the board.
6	**Stop**	Stops the source; the board shows its own content again.
7	**Preview**	The picture of the source before (and while) it is on the board.

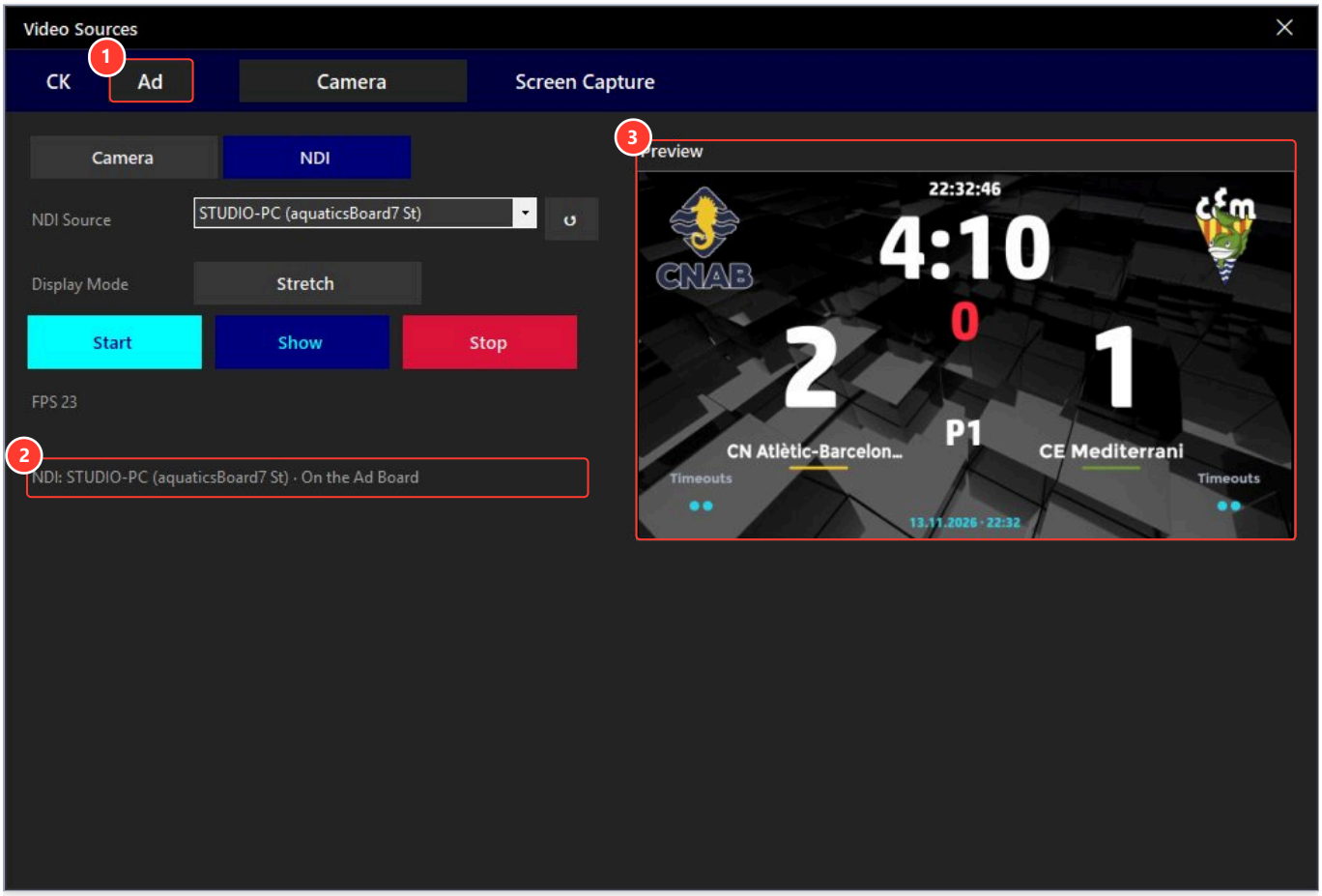


Figure 83. The NDI source started and shown in the Ad main area

#	Control	What it does
1	**Board: Ad**	Ad is chosen: the source goes into the main area of the Ad board.
2	**Status**	What runs and where: the source and “On the Ad Board” or “Preview Only”, or an error text. Above it the frame rate (FPS) of the source.
3	**Preview**	The received picture.

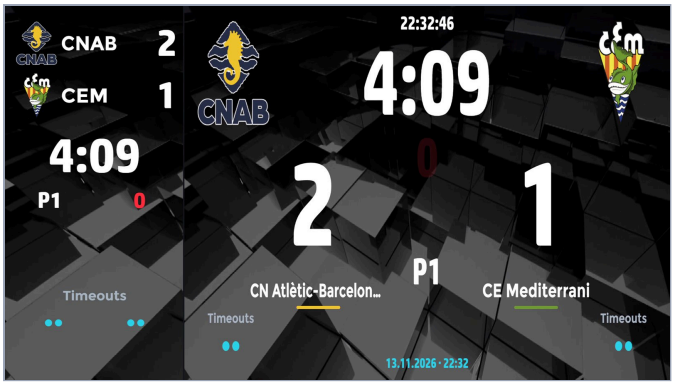


Figure 84. The Ad board with the NDI source in its main area, next to the scoreboard

Screen Capture

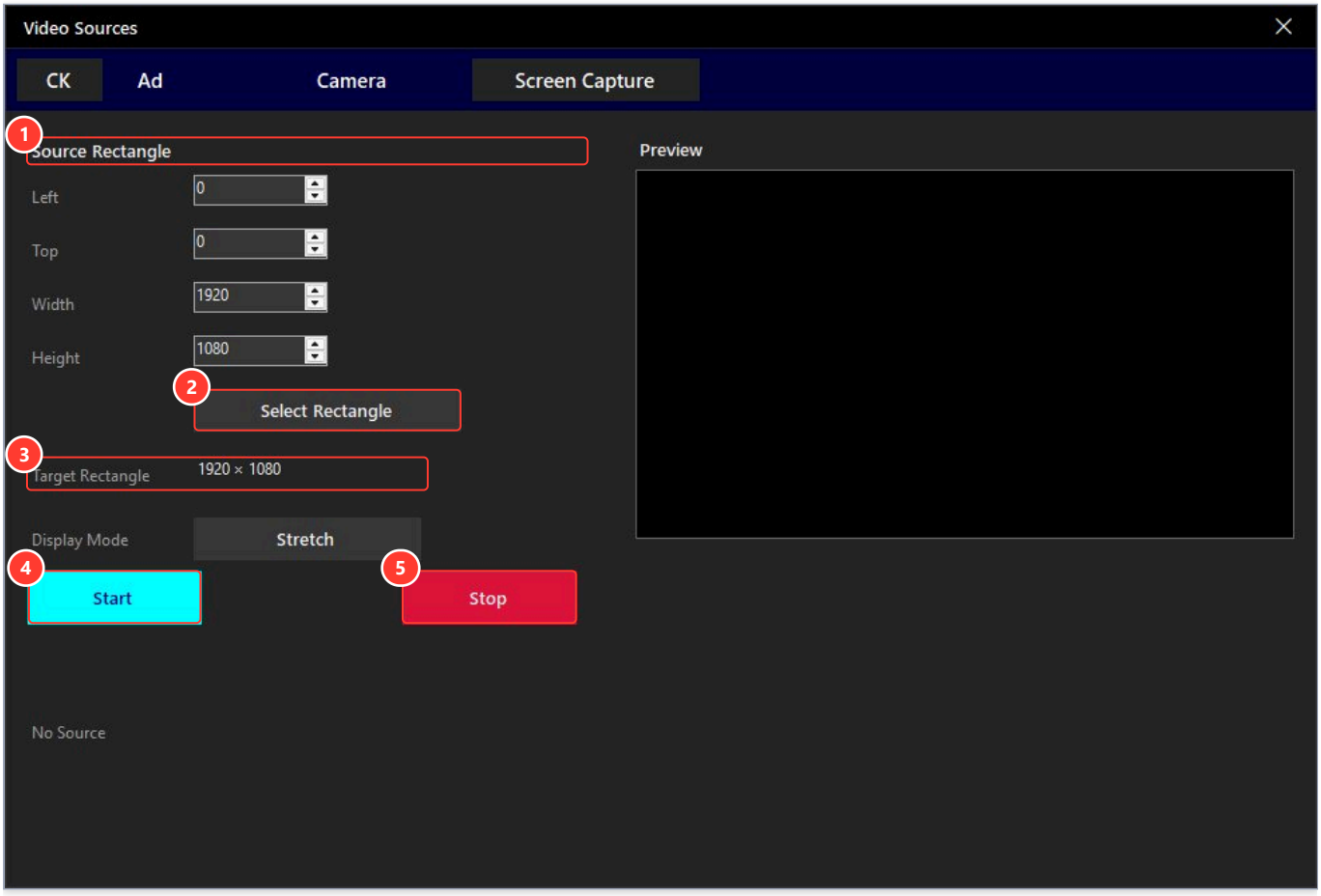


Figure 85. Video Sources – Screen Capture

#	Control	What it does
1	Source Rectangle	The part of the desktop to capture, in pixels of the whole desktop: **Left**, **Top**, **Width**, **Height**.
2	Select Rectangle	Darkens the screens: drag a rectangle with the mouse to fill in the four values.
3	Target Rectangle	The size of the board window the capture goes to.
4	Start	Starts the capture and puts it on the board at once (about 30 frames per second).
5	Stop	Stops the capture.

12 Sp / Ad Media

The **Sp / Ad Media** dialog sets up what the Sponsored and Advertising boards show besides the score: the sponsor strip of the Sp board, where the scrolling text of the Info page runs, how the Ad board is sliced into scoreboard, banners and advertising area, and the pictures, videos and texts of every strip. The dialog stays open next to the main window (you can keep scoring), and every change is saved and shown on the board windows at once.

Open it with	Opens at
Sp / Ad Media... at the bottom of the Outputs page	Sponsor Strip (Sp)
Right-click **Sp** on the output strip of the Game page	Sponsor Strip (Sp)
Right-click **Ad** on the output strip of the Game page	Ad Layout

Each strip has its own folder under *data\media*: *sponsor* (Sp strip), *ad* (main area of the Ad board), *banner1* and *banner2*. An empty banner folder shows the sponsor pictures; empty sponsor and ad folders show the sample media of the sport.

Strip Modes and Fields

Every strip (the Sp strip, both banners and the Ad main area) has a **Mode**. The dialog shows only the fields the chosen mode uses:

Mode	Where	What the strip does	Fields shown
Slide	Sp strip, banners	One picture or video after the other. Pictures stay *Seconds per Picture*; videos play to their end; a single video loops.	Seconds per Picture, Display Mode, Pictures
Playlist	Main Area (Ad)	The same as Slide, for the large advertising area.	Seconds per Picture, Display Mode, Pictures
Scroll Images	all	All pictures side by side in an endless loop (videos are left out).	Direction, Speed, Picture Height, Gap, Background colour, Pictures
Scroll Text	all	Your lines as segments in an endless loop, colours 1–3 cycling per line, a dot or a gap between them.	Direction, Speed, Gap, Font Size, Separator, Colours, Scroll Text
Images + Text	Sp strip, banners	Pictures and lines alternating in one loop (picture 1, line 1, picture 2, line 2 ...).	all scroll fields, Colours, Scroll Text, Pictures
Camera	Main Area (Ad)	The live picture of the PC's camera or capture device.	Display Mode

Field	Range (default)	What it does
Direction	Left, Right, Up, Down (Left)	Where the loop runs. Up / Down suit tall strips such as a side banner.
Speed (1–20)	1–20 (5)	In tenths of the strip's thickness per second: 5 moves half the strip height per second, so the same value looks alike on every board size.
Seconds per Picture	2–120 (8)	How long a picture stays in Slide / Playlist. Videos always play to their end.

Field	Range (default)	What it does
Display Mode	Fit, Fill, Stretch (Fit)	**Fit** shows the whole picture (bars where the shape differs), **Fill** fills the area and crops the edges, **Stretch** fills the area and distorts.
Picture Height (%)	20–100 (80)	Height of the scrolling pictures in % of the strip's thickness.
Gap (%)	0–100 (12)	Space between two pictures or segments, in % of the strip's thickness.
Font Size (%)	20–90 (50)	Text height in % of the strip's thickness. The font is the text font of the design.
Separator	Dot •, Gap Only (Dot)	What stands between two text segments.
Colours	Background, Colour 1–3	Left-click a colour button to choose a colour; **right-click** it to go back to the design's theme colour (the button then says · *Theme*). Lines take Colour 1, 2, 3, 1 … in turn. Theme defaults: background = the design's panel colour for text (transparent for pictures), Colour 1 and 3 = text colour, Colour 2 = accent colour.
Scroll Text (One Segment per Line)	free text	Each non-empty line is one segment of the loop. The board updates half a second after you stop typing.

Sponsor Strip (Sp)

The strip along the bottom of the Sp board. The picture shows the factory settings (Slide):

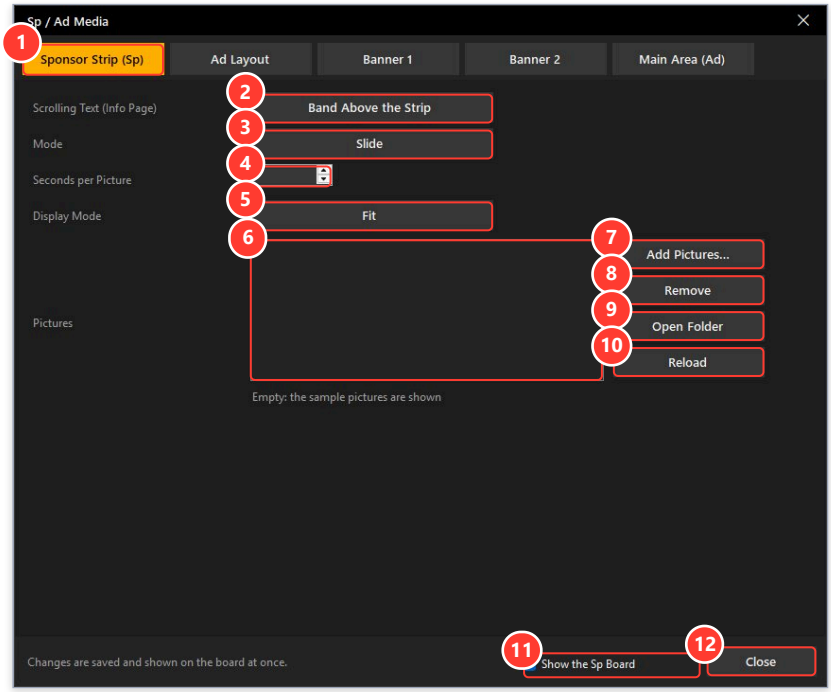


Figure 86. Sp / Ad Media – Sponsor Strip (Sp)

#	Control	What it does
1	Tabs	**Sponsor Strip (Sp)** – the strip of the Sp board; **Ad Layout** – how the Ad board is sliced; **Banner 1** / **Banner 2** – the content of the two Ad banners; **Main Area (Ad)** – the large advertising area. The open tab is amber.

#	Control	What it does
2	Scrolling Text (Info Page)	Where the scrolling text of the Info page runs: **Band Above the Strip** – in its own band of the design above the sponsor strip; **Inside the Strip** – it replaces the strip content while there is a text (with the strip's direction, speed, font size and colours) and the strip returns to its pictures when you click Clear on the Info page.
3	Mode	**Slide**, **Scroll Images**, **Scroll Text** or **Images + Text** (see the table above).
4	Seconds per Picture	Slide only: 2–120 seconds per picture (default 8).
5	Display Mode	Slide only: **Fit**, **Fill** or **Stretch**.
6	Pictures	The files of the strip's folder in file name order (pictures PNG, JPG, WEBP, SVG and videos MP4, WEBM). Select one or more (`Ctrl` / `Shift`+click) for Remove. The line below the list shows the folder, or – when it is empty – "Empty: the sample pictures are shown" (the sample sponsor pictures of the sport play).
7	Add Pictures...	Choose pictures and videos; they are copied into the folder (a file of the same name is replaced) and the board reloads.
8	Remove	Deletes the selected files from the folder after a confirmation.
9	Open Folder	Opens the folder in Windows Explorer – handy for renaming files to change their order.
10	Reload	Reads the folder again after you changed files in Explorer and sends the new playlist to the board.
11	Show the Sp / Ad Board	Opens or closes the board this tab belongs to (Sp for the Sponsor Strip tab, Ad for the other tabs), so you can watch every change live.
12	Close	Closes the dialog (also `Esc` or ×). There is no Save button: every change is saved and shown on the board at once.

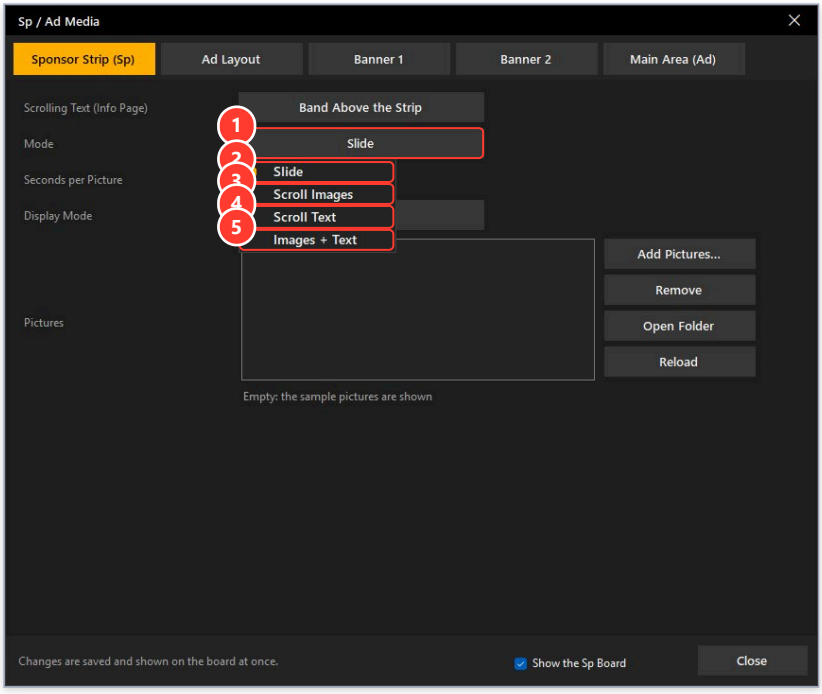


Figure 87. The Mode list of the Sponsor Strip (Sp)

#	Control	What it does
1	Mode field	Shows the mode of the strip; click to open the list.

#	Control	What it does
2	Slide	One picture or video after the other.
3	Scroll Images	All pictures side by side in an endless loop.
4	Scroll Text	The lines of the scroll text in an endless loop.
5	Images + Text	Pictures and lines alternating in one loop.

The Sp Strip on the Board

The same Sp board with four different strip settings:

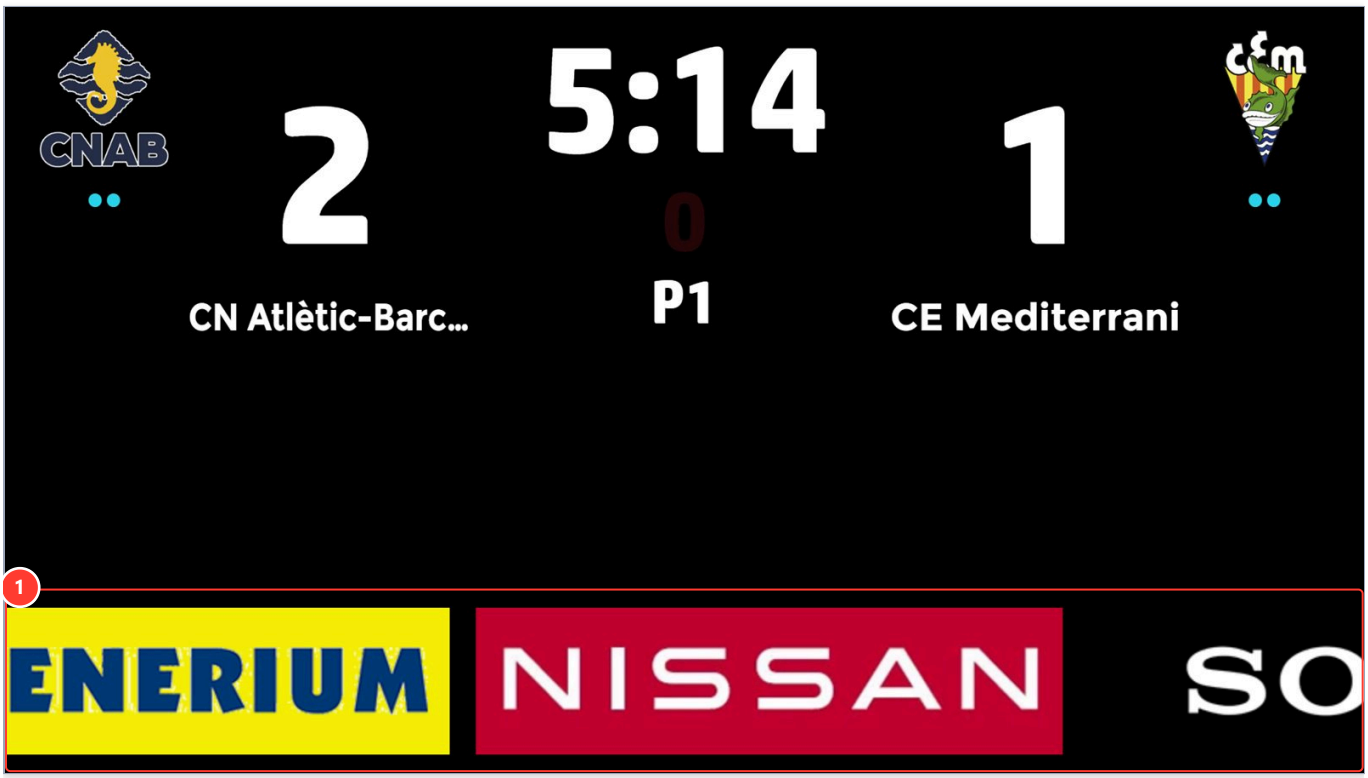


Figure 88. Scroll Images – the sponsor pictures in an endless loop to the left

#	Control	What it does
1	Sponsor strip	Mode **Scroll Images**, Direction Left, Speed 5, Picture Height 80 %, Gap 14 %. Without a background colour the board shows through between the pictures.



Figure 89. Scroll Text – three lines as segments, Colour 1 / 2 / 3 cycling, dot separator

#	Control	What it does
1	Text strip	Mode **Scroll Text**, Font Size 50 %, Separator Dot. The background is the design's panel colour (theme).

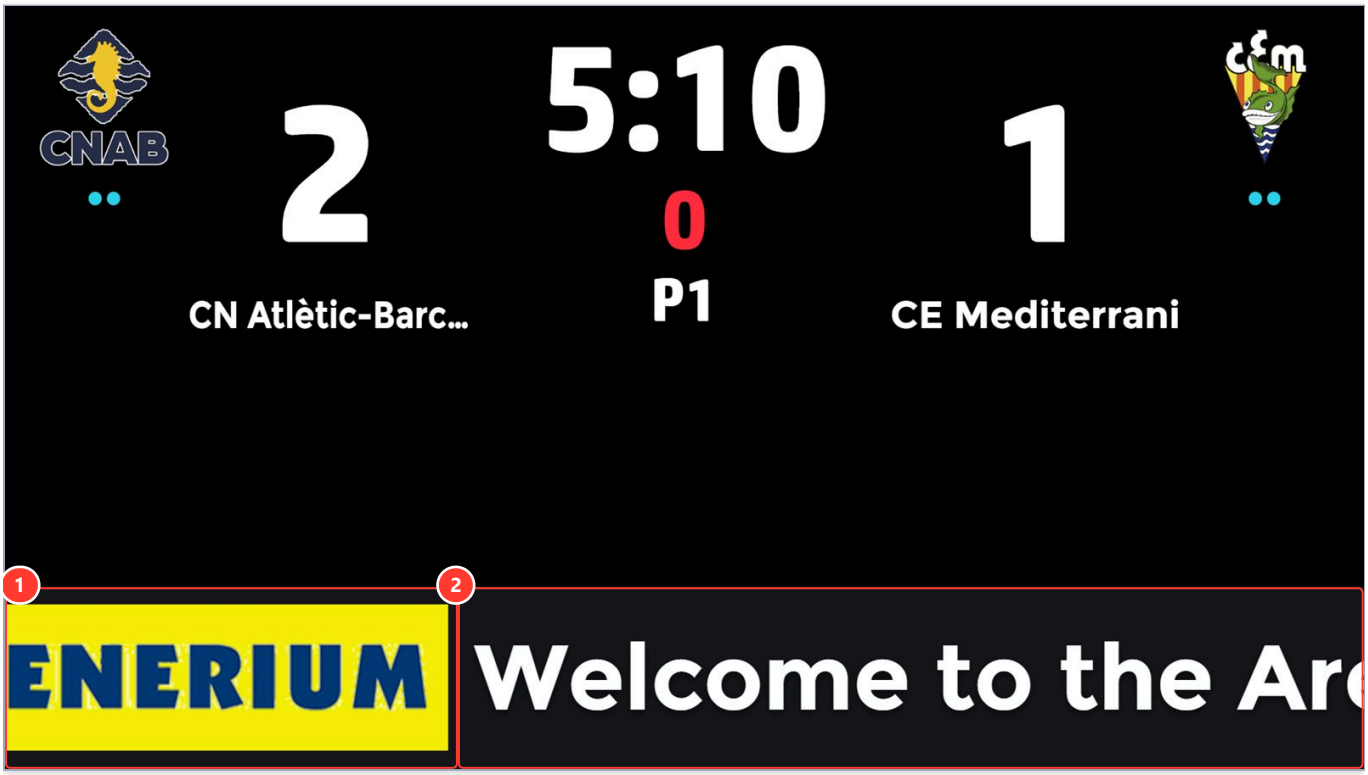


Figure 90. Images + Text – pictures and lines alternating

#	Control	What it does
1	Picture	A sponsor picture …

#	Control	What it does
2	Line	… followed by a line of the scroll text, then the next picture.

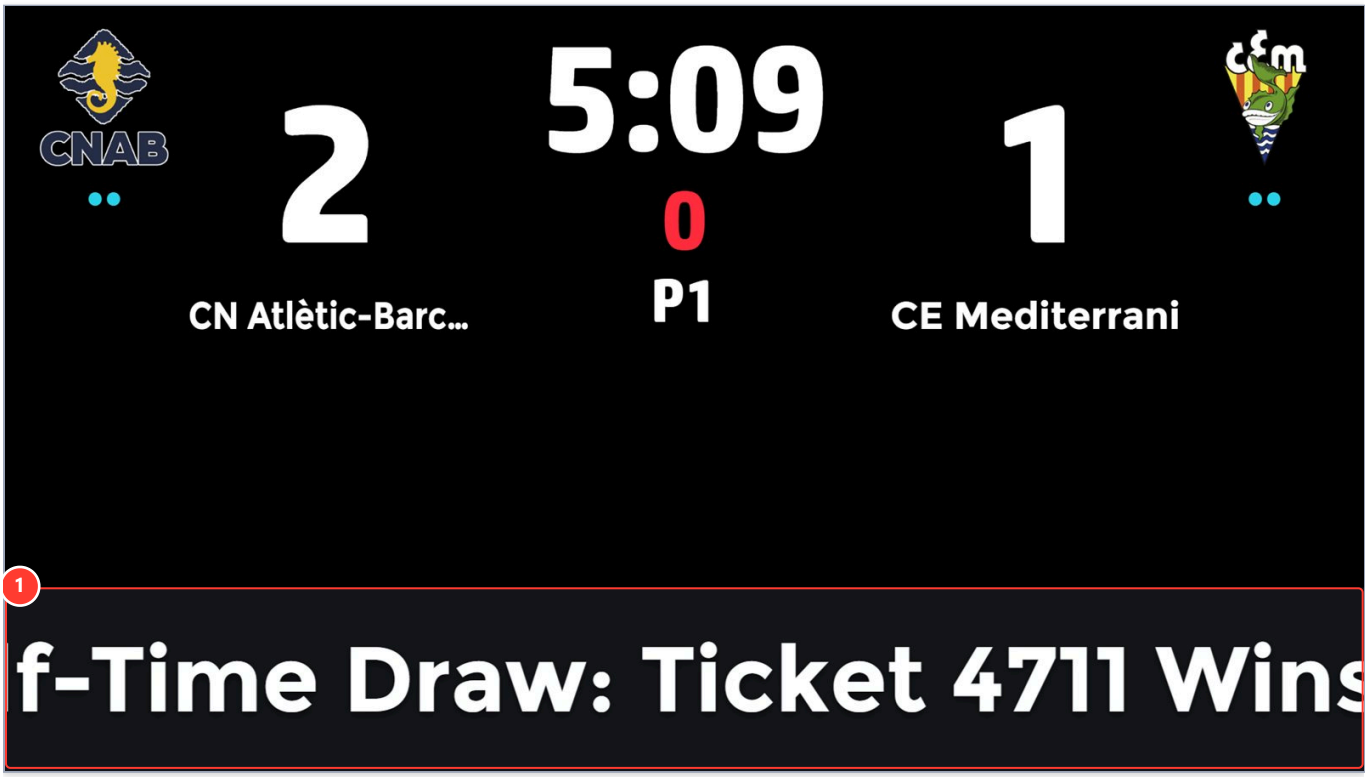


Figure 91. Scrolling Text (Info Page) set to Inside the Strip

#	Control	What it does
1	**Info page text in the strip**	While the Info page has a scrolling text, it runs inside the strip instead of the pictures. **Clear** on the Info page gives the strip back to its pictures.

Ad Layout

The Ad board is cut into slices: the **scoreboard**, up to two **banners** and the **main area** that takes what is left. This tab decides the sides and sizes:

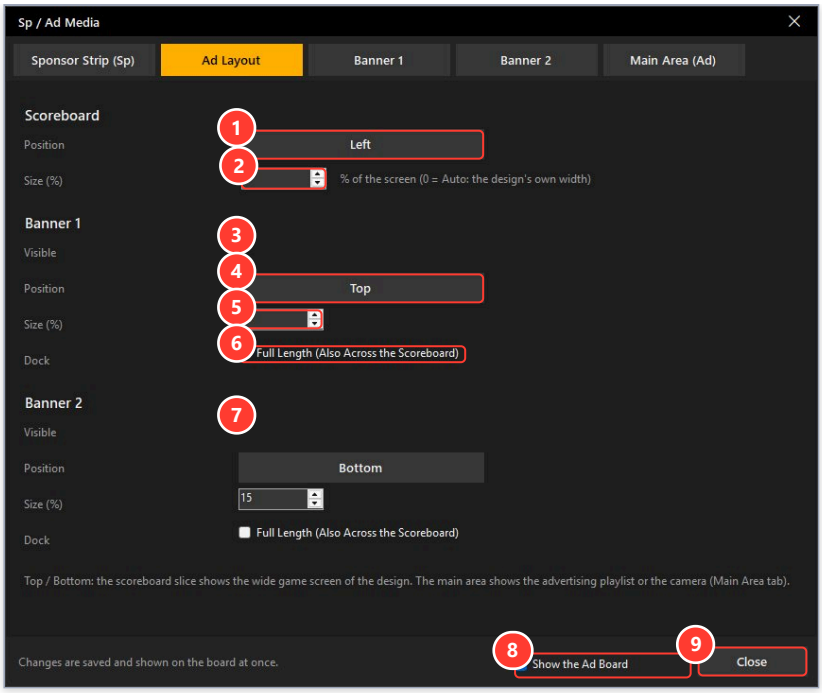


Figure 92. Sp / Ad Media – Ad Layout

#	Control	What it does
1	**Scoreboard: Position**	**Left** (default), **Right**, **Top** or **Bottom**. Top / Bottom show the wide game screen of the design (*Ad Game Wide*) across the screen.
2	**Scoreboard: Size (%)**	% of the screen width (left / right) or height (top / bottom), 10–70. **0** = Auto: the design's own column width (top / bottom: 30 %).
3	**Banner 1: Visible**	Shows banner 1. A hidden banner takes no room. Both banners are off by default.
4	**Banner 1: Position**	The side of the banner: Top (default for banner 1), Bottom (default for banner 2), Left or Right.
5	**Banner 1: Size (%)**	Thickness of the banner: 5–50 % of the screen height (top / bottom) or width (left / right). Default 15.
6	**Banner 1: Dock**	**Full Length**: the banner runs along the whole screen edge, across the scoreboard too. Off: it only covers the advertising side next to the scoreboard.
7	**Banner 2**	The same four settings for banner 2.
8	**Show the Sp / Ad Board**	Opens or closes the board this tab belongs to (Sp for the Sponsor Strip tab, Ad for the other tabs), so you can watch every change live.
9	**Close**	Closes the dialog (also `Esc` or ×). There is no Save button: every change is saved and shown on the board at once.

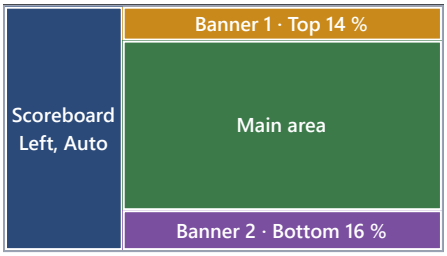
Tip: the content of each banner is set on its own tab (Banner 1, Banner 2), the main area on **Main Area (Ad)**.

How the Ad Board Is Sliced

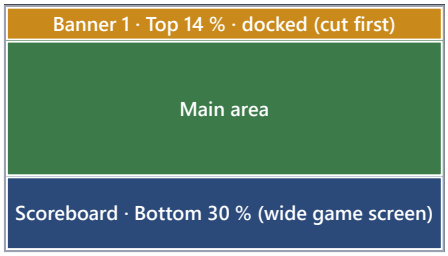
The board cuts the screen in a fixed order. Hidden banners take no room:

1. **Docked banners** (Full Length ticked) first: each takes its size along its whole screen edge.
2. Then the **scoreboard** slice on its side, with its size (or the design's own width).

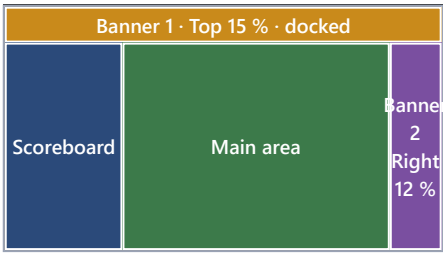
3. Then the **banners that are not docked**: they are cut only from what is left, so they run next to the scoreboard, not across it.
4. What remains is the **main area** (advertising playlist, camera or scroll).



A: banners not docked – they stop at the scoreboard



B: scoreboard across the bottom, docked banner over the full width



C: docked top banner, scoreboard left, side banner right

Ad Layout	Scoreboard	Banner 1	Banner 2	Main area
Factory settings	Left, Auto width	hidden	hidden	the rest (right part)
Example A (below)	Left, Auto (≈ 27 %)	Top 14 %, not docked: right of the scoreboard	Bottom 16 %, not docked: right of the scoreboard	between the banners
Example B (below)	Bottom 30 %, wide game screen	Top 14 %, docked: full width	hidden	the middle band
Side banner	Left, Auto	Right 12 %, not docked	hidden	between scoreboard and banner
LED strip 1920 × 480	Left 25 %	hidden	hidden	the rest of the strip

Two Examples



Figure 93. Example A – scoreboard left, banner 1 (Scroll Text) at the top, banner 2 (Scroll Images) at the bottom

#	Control	What it does
1	**Scoreboard**	Position Left, Size 0 (Auto): the design's own column width.
2	**Banner 1**	Top, 14 %, not docked: it starts right of the scoreboard. Mode Scroll Text.
3	**Main area**	Main Area (Ad) in Playlist mode: the advertising pictures and videos.
4	**Banner 2**	Bottom, 16 %, not docked. Mode Scroll Images (the sponsor pictures, because the banner2 folder is empty).

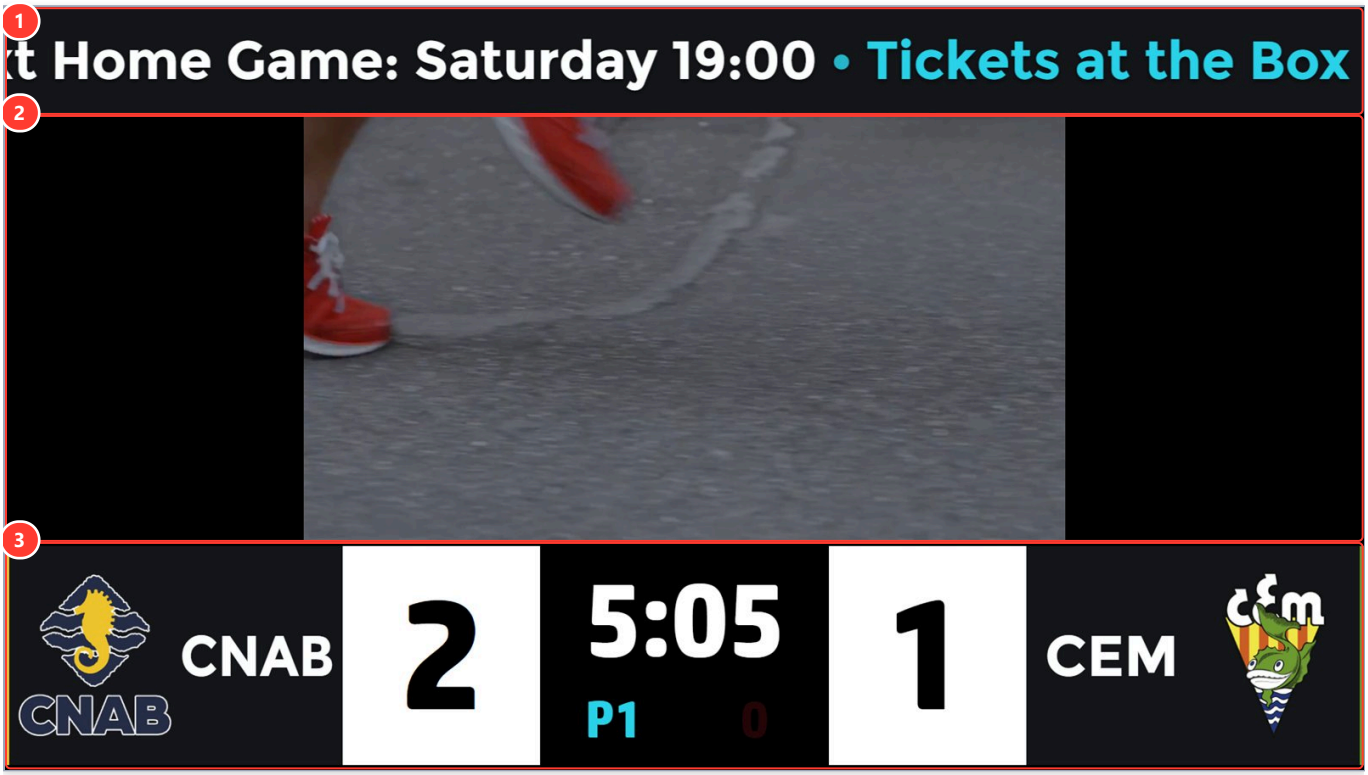


Figure 94. Example B – scoreboard across the bottom, banner 1 docked at the top

#	Control	What it does
1	**Banner 1 (docked)**	Top, 14 %, Full Length: it is cut first and runs across the whole width.
2	**Main area**	What is left between the banner and the scoreboard. The video keeps its shape (Display Mode Fit).
3	**Scoreboard (wide)**	Position Bottom, Size 30 %: the board shows the wide game screen of the design.

Banner 1 and Banner 2

The content of the two banners. Their place and size are on the Ad Layout tab. New banners start as **Scroll Images**:

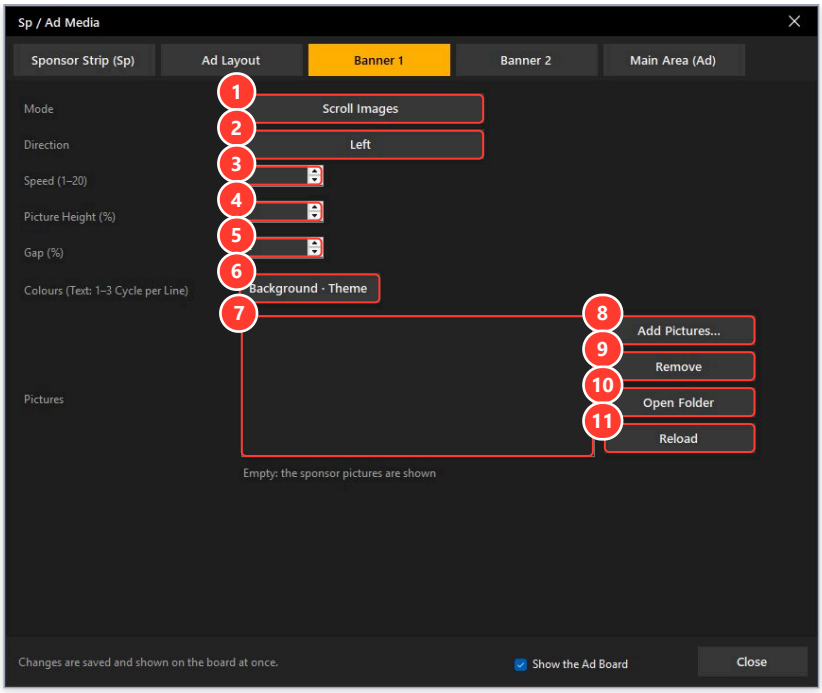


Figure 95. Sp / Ad Media – Banner 1 (Scroll Images)

#	Control	What it does
1	Mode	**Slide**, **Scroll Images**, **Scroll Text** or **Images + Text**.
2	Direction	Left, Right, Up or Down.
3	Speed (1–20)	Scroll speed (default 5).
4	Picture Height (%)	Height of the pictures in % of the banner's thickness (default 80).
5	Gap (%)	Space between the pictures (default 12).
6	Colours: Background	Background of the banner. Left-click chooses a colour, right-click returns to the theme. In the text modes the buttons Colour 1, Colour 2 and Colour 3 appear next to it.
7	Pictures	The files of the strip's folder in file name order (pictures PNG, JPG, WEBP, SVG and videos MP4, WEBM). Select one or more (`Ctrl` / `Shift`+click) for Remove. The line below the list shows the folder, or – when it is empty – that the sponsor pictures are shown.
8	Add Pictures...	Choose pictures and videos; they are copied into the folder (a file of the same name is replaced) and the board reloads.
9	Remove	Deletes the selected files from the folder after a confirmation.
10	Open Folder	Opens the folder in Windows Explorer – handy for renaming files to change their order.
11	Reload	Reads the folder again after you changed files in Explorer and sends the new playlist to the board.

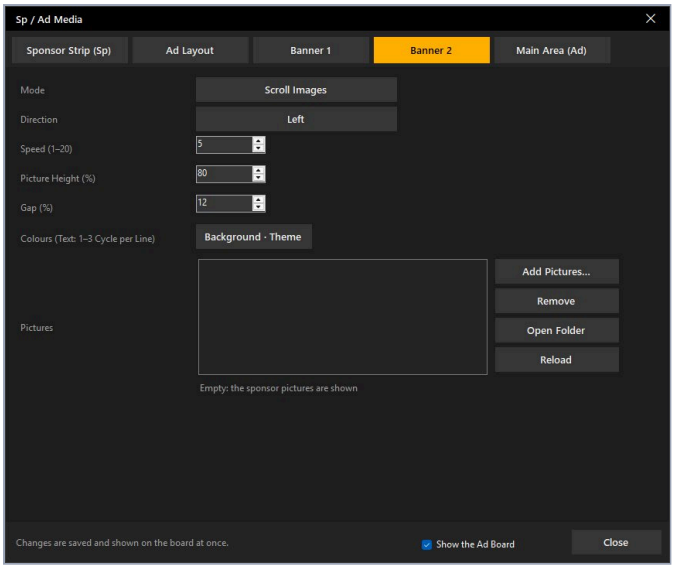


Figure 96. Banner 2 – the same fields for the second banner (folder data\media\banner2)

Main Area (Ad)

The large advertising area of the Ad board:

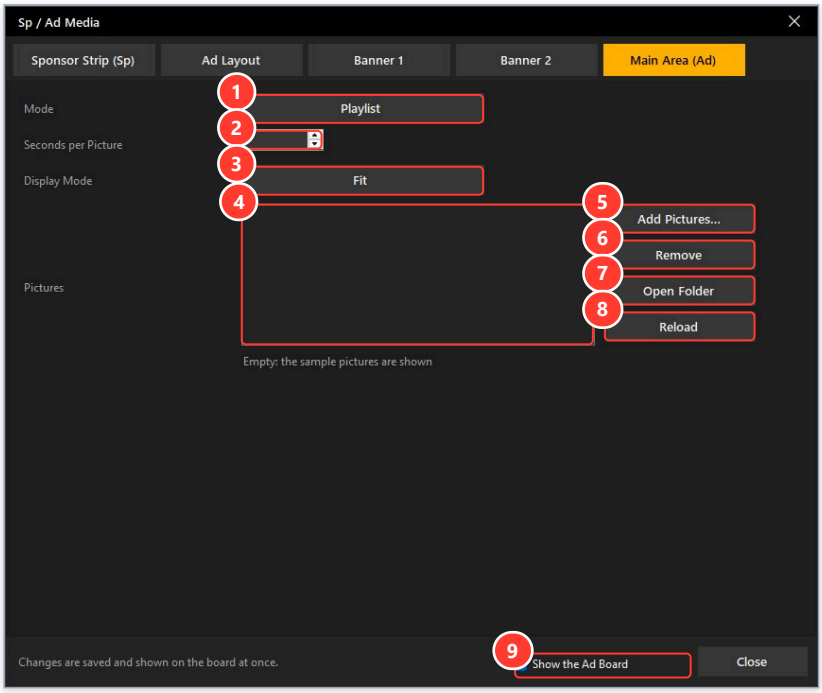


Figure 97. Sp / Ad Media – Main Area (Ad), Playlist

#	Control	What it does
1	Mode	**Playlist** (one picture or video after the other), **Camera** (the live picture of the PC's default camera or capture device), **Scroll Images** or **Scroll Text**.
2	Seconds per Picture	Playlist: how long each picture stays (default 8); videos play to their end.
3	Display Mode	Playlist and Camera: Fit, Fill or Stretch.

#	Control	What it does
4	**Pictures**	The files of the strip's folder in file name order (pictures PNG, JPG, WEBP, SVG and videos MP4, WEBM). Select one or more (`Ctrl` / `Shift`+click) for Remove. The line below the list shows the folder, or – when it is empty – "Empty: the sample pictures are shown" (the sample advertising media of the sport play).
5	**Add Pictures…**	Choose pictures and videos; they are copied into the folder (a file of the same name is replaced) and the board reloads.
6	**Remove**	Deletes the selected files from the folder after a confirmation.
7	**Open Folder**	Opens the folder in Windows Explorer – handy for renaming files to change their order.
8	**Reload**	Reads the folder again after you changed files in Explorer and sends the new playlist to the board.
9	**Show the Sp / Ad Board**	Opens or closes the board this tab belongs to (Sp for the Sponsor Strip tab, Ad for the other tabs), so you can watch every change live.

> **Tip** Camera needs a camera or a capture device that Windows sees (USB webcam, HDMI capture stick). It shows the default device; the camera picture is part of the board, so it also goes out over NDI.

Removing Pictures

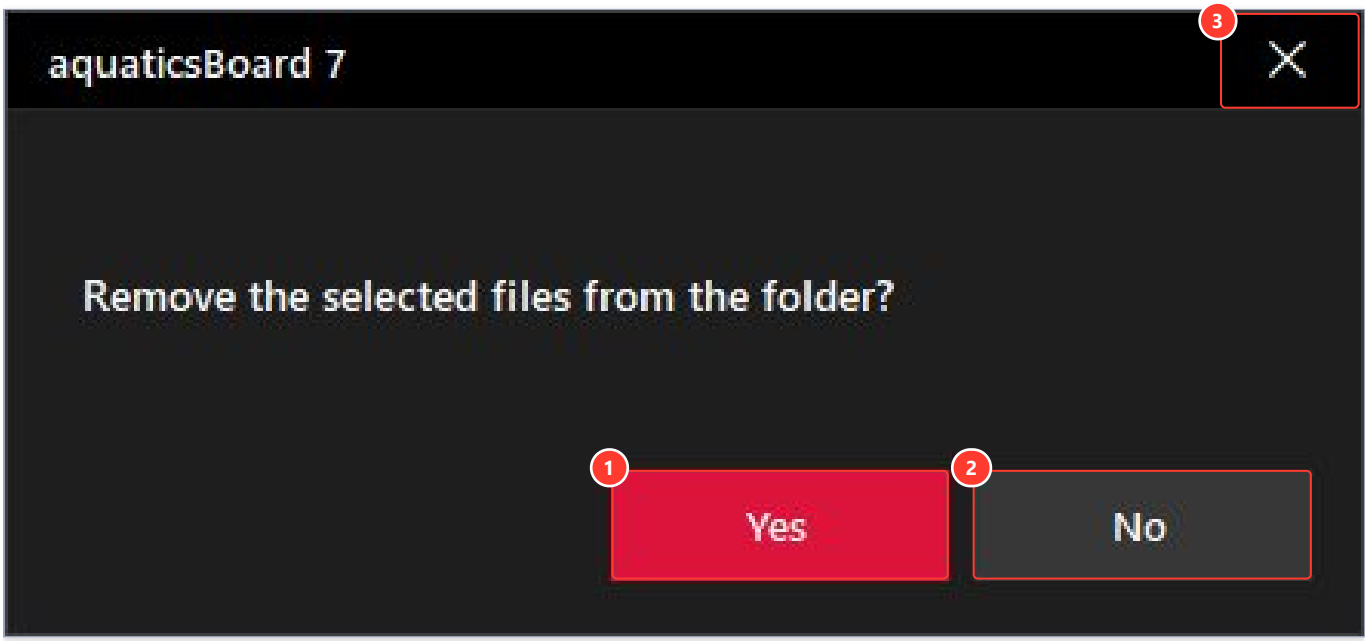


Figure 98. "Remove the selected files from the folder?"

#	Control	What it does
1	**Yes**	Deletes the selected files from the strip's folder (they are not moved to the recycle bin) and reloads the board.
2	**No**	Keeps the files.
3	**Close** (×)	The same as **No**. `Esc` also answers No.

13 Board Designs

Every sport comes with three master designs: **Arena** (black LED look with big digits and corner logos), **Broadcast** (header strip and team rows, the default of the CK output) and **Split** (team panels left and right of a centre column). A design contains all screens of all four outputs: St game and info screens, Sp, Ad (normal and wide) and the CK graphics.

Master designs are read-only. To change one, open it in the editor and save a copy: the copy is an **own design** that you can change, rename and delete. Program updates never change your own designs.

Preview Design (Design Gallery)

Click the design icon under CK on the output strip of the Game page. The gallery shows every design of the running sport, rendered live with the current match.

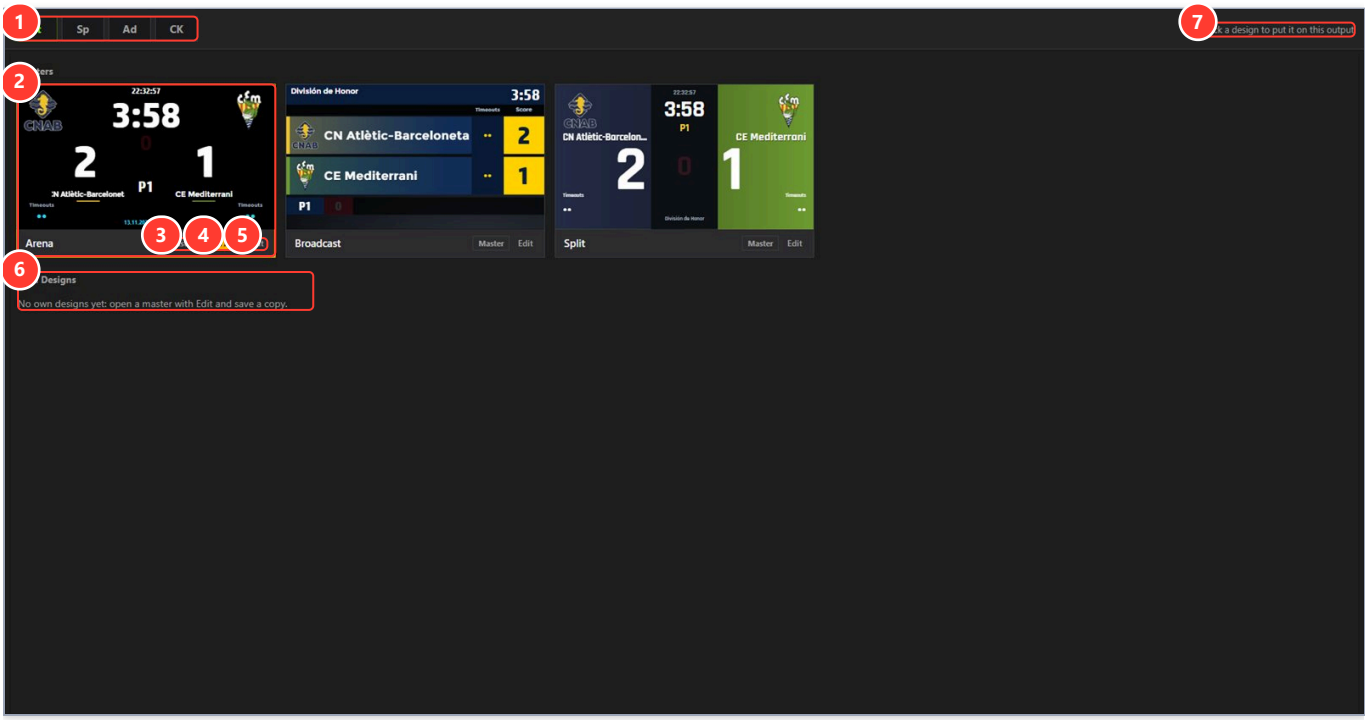


Figure 99. The design gallery

#	Control	What it does
1	St / Sp / Ad / CK	Choose the output whose designs you want to see. The output shown is green; the tooltip shows the full output name.
2	Design card	A live preview of the design's game screen for that output. **Click the card** (or press `Enter`) to put this design on the chosen output at once.
3	Master / Own	Whether the design is a factory master or one of your own designs.
4	On Air	Marks the design the output uses now (the card also has an amber frame).
5	Edit	Opens this design in the design editor.
6	Own Designs	Your own copies. Until you save a copy of a master, this part says that there are no own designs yet.
7	Hint	Reminder: a click on a design puts it on this output.

The gallery follows the match live. Close it with `Esc` or the window button. The design choice is saved per sport and output; it is the same choice as the Design list on the Outputs page.

The Design Editor

Open the editor with **Edit** in the gallery or **Edit Design** on the Outputs page. What you see on the canvas is exactly what goes on air.



Figure 100. The design editor

#	Control	What it does
1	Sport	The sport whose designs are edited.
2	Design	The design to edit (masters and own designs). A lock marks a read-only master.
3	Save / Save a Copy / Rename / Delete	**Save** (`Ctrl` + `S`) stores the changes of an own design; outputs that use it update at once. **Save a Copy** asks for a name and creates a new own design. **Rename** and **Delete** work on own designs only (Delete asks first and cannot be undone).
4	Screens	All screens of the design: St Game, Sp Game, Ad Game, Ad Game Wide, CK Game, the info screens, St Game Players and the event graphics. Click a tab to edit that screen; the arrows scroll the row.
5	Read-only notice	Shown for factory masters: **Save a Copy** creates your own editable copy.
6	Add Element	Adds a **Text**, a **Data Field** (any value of the match: score, clock, names, fouls ...), a **Box**, a **Team Logo**, an **Image** (up to 8 MB) or a **Media Slot** (the sponsor / ad playlist or a camera).
7	Layers	All elements of the screen, the top one in front. Per element: show / hide (eye), lock, bring forward ▲, send backward ▼. Click a name to select it; names in italics are hidden by a rule at the moment (e.g. penalty elements while no penalty runs).
8	Undo / Redo	`Ctrl` + `Z` / `Ctrl` + `Y`.
9	Duplicate / Delete	Duplicates the selected elements (`Ctrl` + `D`) or deletes them (`Del`).

#	Control	What it does
10	**Align and distribute**	Aligns several selected elements left, centre, right, top, middle or bottom, or spaces them evenly.
11	**Preview Size**	Checks the design at 1920 × 1080, 1280 × 1024, 1920 × 480 or 1080 × 1920. Positions are relative to the edges, so one design fits several screen shapes.
12	**Preview Data**	Sample match data on the canvas: a mid-match situation, or a special moment (penalties, timeouts, possession …) to check elements that only appear then.
13	**Key colour**	Background of CK screens in the editor: green, checker or grey.
14	**Preview**	Hides the selection frames and handles to see the screen as on air.
15	**Scale**	The preview size, the editor unit (1 u = 1 % of the smaller side), the screen in units and the zoom of the canvas.
16	**Canvas**	Click to select, drag to move, drag the handles to resize. `Shift`+click or drag a frame to select several. Arrow keys move by 0.5 units, `Shift`+arrow by 5.
17	**Properties / Theme / Scene JSON**	**Properties**: position, size, text, data field, font, colours and rules (e.g. turn red when the shot clock runs out) of the selected element. **Theme**: theme presets, digit and text font and the colour tokens – a colour change applies to every element and screen that uses it (also the theme colours of the Sp / Ad strips). **Scene JSON**: the screen as text, for advanced users (**Apply** checks and loads it).

> **Tip** Change colours in the **Theme** tab first: one change recolours the whole design on every screen. Use element properties only for single exceptions.

14 Settings

Open **Settings** ⚙ at the right end of the tab strip. All settings are stored in *data\config\settings.json*.

The Settings Page

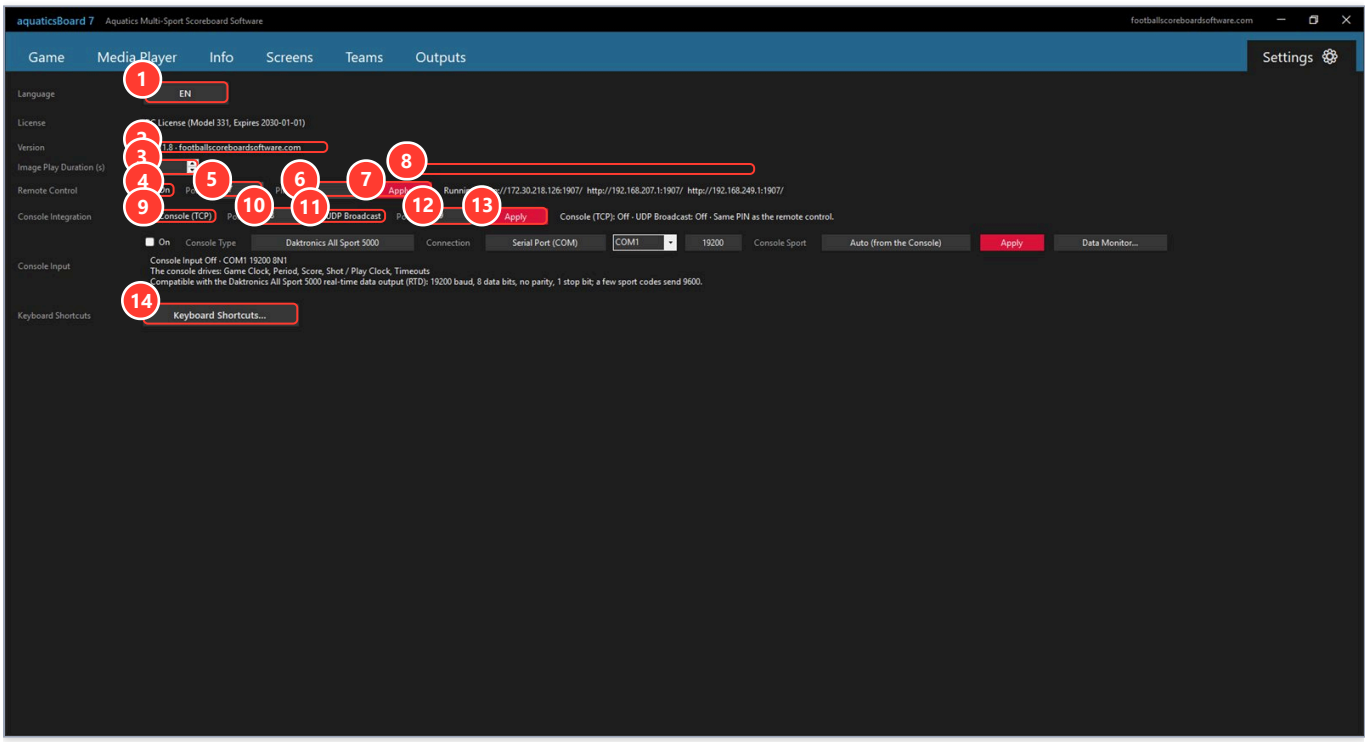


Figure 101. The Settings page

#	Control	What it does
1	**Language**	The language of the program, the board texts and the remote control pages (sign-in page, headings, buttons and questions on the phone follow it). Click to open the list of languages (the same list as on the right strip of the Game page). The new language is used after a restart.
2	**Version**	Program version and web site.
3	**Image Play Duration (s)**	How long a picture of a Media Player playlist stays on the board before the next clip (1–3600 seconds, default 5). Videos always play to their end.
4	**Remote Control: On**	The built-in web server for phones and tablets (and the HTTP API). On by default.
5	**Port**	The TCP port of the web server (default 1907).
6	**PIN**	The PIN a phone needs to sign in (four random digits are set on the first start). Empty = nobody can sign in. A new PIN applies to new sign-ins.
7	**Apply (remote)**	Saves the three values (On, Port, PIN) and restarts the server. The button sits on the same line as the text boxes.
8	**Status and addresses**	**Running** and the addresses to open on the phone (one per network adapter), or **Off** / **Not running** with the reason (e.g. the port is in use).
9	**Console (TCP)**	The console link for table consoles, statistics and automation software (default port 1908, off by default). Uses the same PIN.

#	Control	What it does
10	**Console port**	TCP port of the console link.
11	**UDP Broadcast**	Sends every change of the board as UDP datagrams to the local network (off by default). No PIN; listeners only receive.
12	**UDP port**	The UDP port of the broadcast (default 1909).
13	**Apply (console)**	Saves the console and UDP settings and restarts the services. The status line shows Off / Running (with the number of connected consoles).
14	**Keyboard Shortcuts…**	Opens the keyboard shortcut editor.

Choosing the Language

Click the language button at the top of the right strip on the Game page (or the Language field of the Settings page). The list shows every language by its code; the current one is ticked.

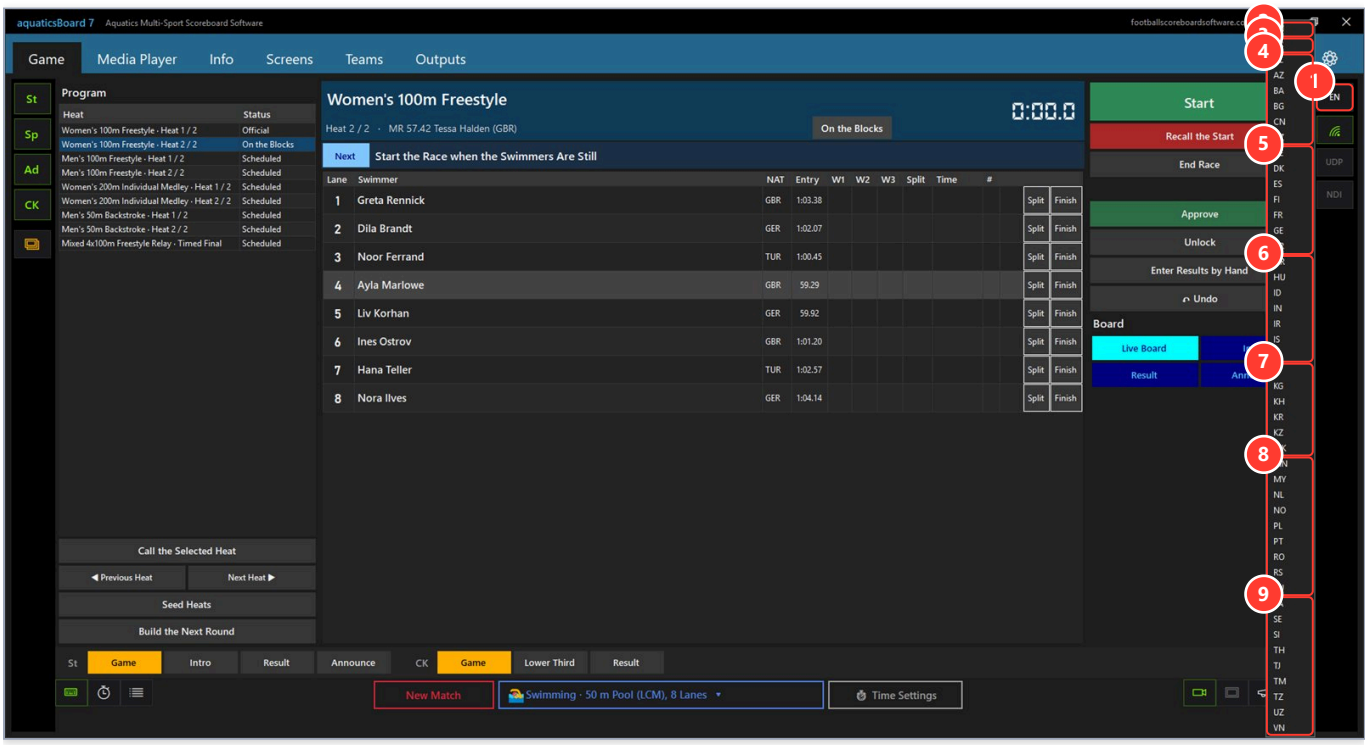


Figure 102. The language menu on the right strip

#	Control	What it does
1	**Language button**	Shows the current language code and opens the menu.
2	**EN**	English – the language of this guide and the fall-back for every text that a language file does not have.
3	**TR**	Turkish.
4	**AL · AZ · BA · BG · CN · CZ**	Albanian, Azerbaijani, Bosnian, Bulgarian, Chinese, Czech.
5	**DE · DK · ES · FI · FR · GE · GR**	German, Danish, Spanish, Finnish, French, Georgian, Greek.
6	**HR · HU · ID · IN · IR · IS · IT**	Croatian, Hungarian, Indonesian, Hindi, Persian (written right to left), Icelandic, Italian.

#	Control	What it does
7	JP · KG · KH · KR · KZ · MK	Japanese, Kyrgyz, Khmer, Korean, Kazakh, Macedonian.
8	MN · MY · NL · NO · PL · PT · RO · RS · RU	Mongolian, Malay, Dutch, Norwegian, Polish, Portuguese, Romanian, Serbian, Russian.
9	SA · SE · SI · TH · TJ · TM · TZ · UZ · VN	Arabic (written right to left), Swedish, Slovenian, Thai, Tajik, Turkmen, Swahili, Uzbek, Vietnamese.

The menu is the same in every sport; here it is open over the panel of another sport:

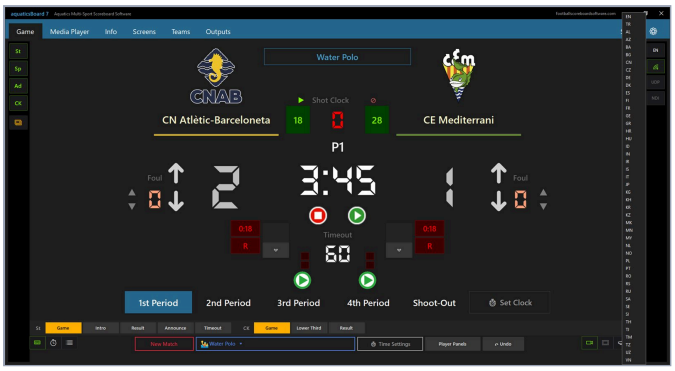


Figure 103. The language menu over the Water Polo panel

Restart for the New Language

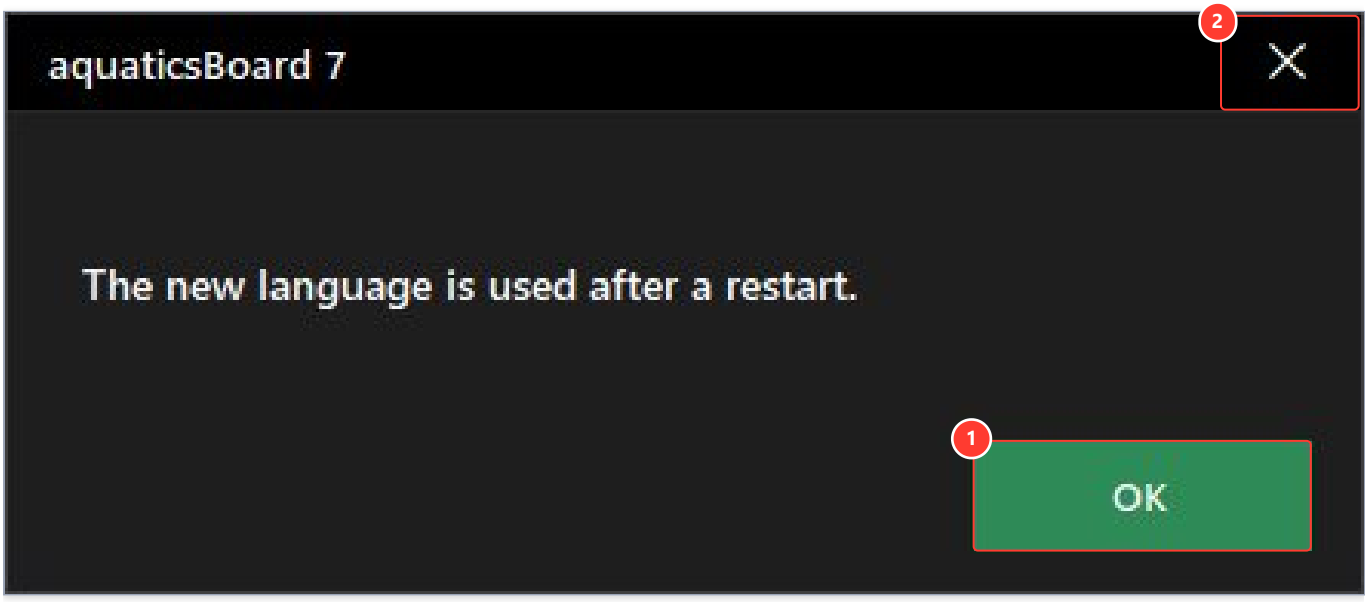


Figure 104. “The new language is used after a restart.”

#	Control	What it does
1	OK	Closes the message. The choice is already saved; close aquaticsBoard 7 and start it again to switch the program, the boards and the remote to the new language.
2	Close (×)	The same as OK.

15 Keyboard Shortcuts

aquaticsBoard 7 has global keyboard shortcuts: they work even while vMix, CasparCG, a browser or any other program has the focus, so you can score from a second keyboard or a numeric keypad while you work in another window. Only the F-keys `F1`–`F12` and the numeric keypad (`NumLock` on: `0`–`9`, `/`, `*`, `-`, `+`, `,`) can be used – never letters or the normal digits. The key still reaches the other program too.

Open the editor with the keyboard icon at the bottom left of the Game page or **Keyboard Shortcuts…** on the Settings page.

The Shortcut Editor

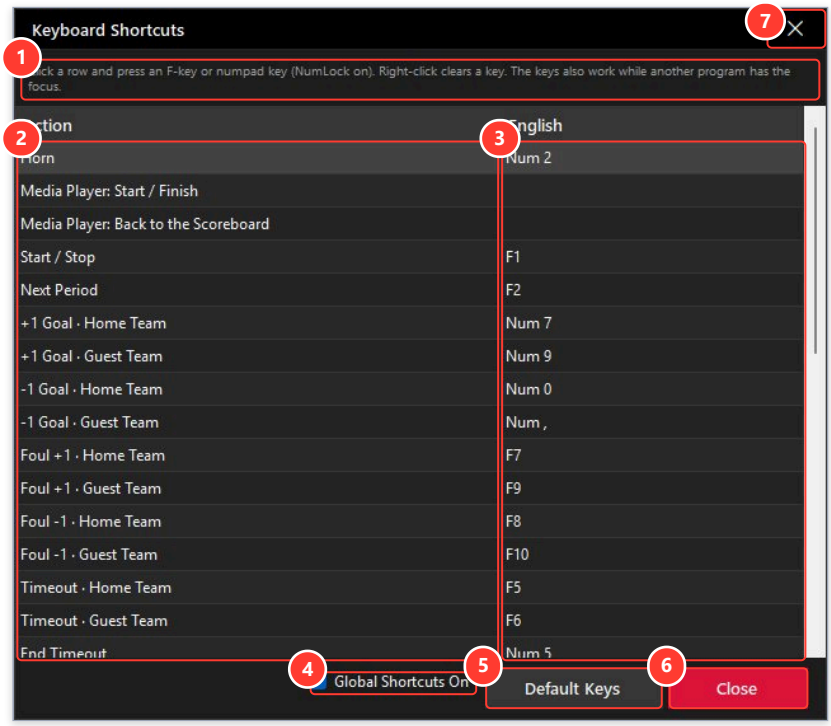


Figure 105. The keyboard shortcut editor

#	Control	What it does
1	**Help line**	How to assign and clear keys.
2	**Action**	Every action of the running sport and discipline, per team where it belongs to a team, plus the Horn. The names are the ones of the panel and the remote (*+2 Goal*, *Play Clock 40*, *Centre Pass* …). Actions that reset the match have no key, and actions that need a typed value or a choice are not listed (Set Clock, Added Time, Ball On, a cricket delivery or revised target, the lane times and lane status of swimming, the awards, dive selection and dive change of diving): use the panel or the remote for them.
3	**Key**	**Click a row**, then press an F-key or a numpad key: the key is assigned (“Press a Key…” is shown while waiting). A key belongs to one action only; it is taken away from its old action. **Right-click** a row (or press `Delete`) to clear its key. `Esc` first cancels waiting, a second `Esc` closes the window.
4	**Global Shortcuts On**	Switches all shortcuts on or off. While they are off you can still assign keys here.
5	**Default Keys**	Replaces the keys of this sport with the default keys (after a confirmation, below).

#	Control	What it does
6	**Close**	Closes the editor. Keys are saved at once.
7	**Close** (×)	The same as Close.

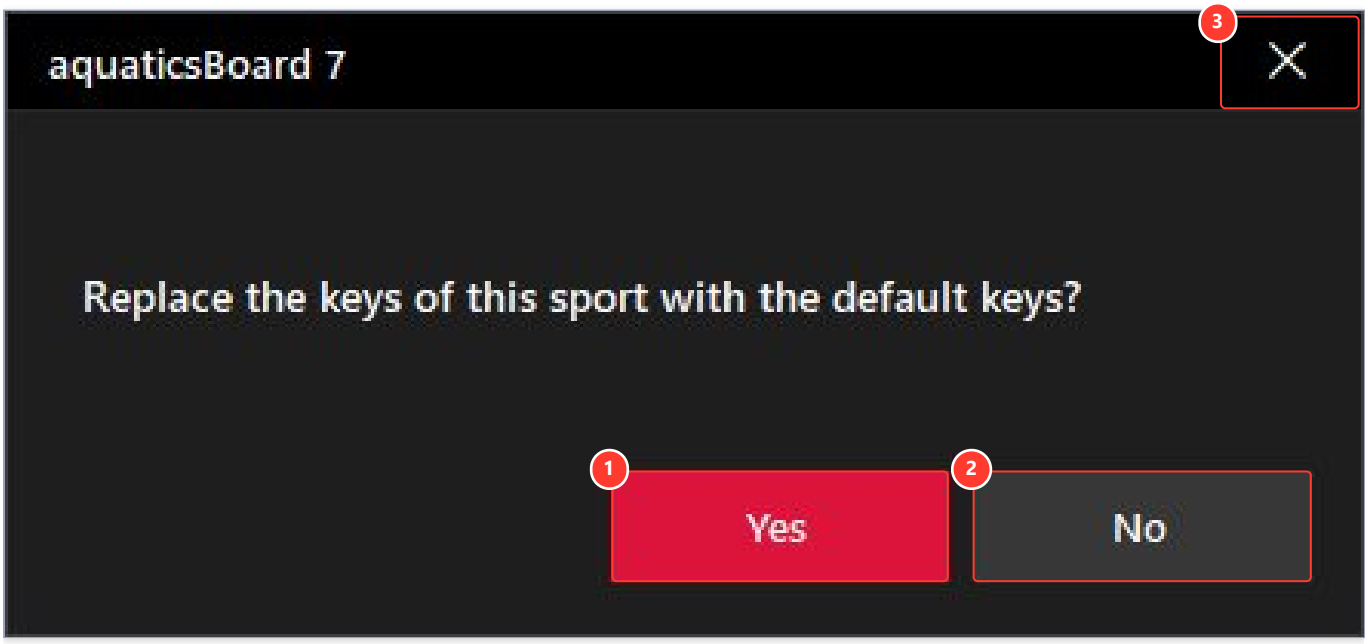


Figure 106. “Replace the keys of this sport with the default keys?”

#	Control	What it does
1	**Yes**	Every key of the running sport goes back to the default below; your own keys of this sport are lost. Other sports keep their keys.
2	**No**	Keeps your keys.
3	**Close** (×)	The same as **No**. `Esc` also answers No.

Default Keys

The keys are saved per sport in *data\config\hotkeys.json*. The default keys (when the sport has the action):

Key	Default action
`F1`	Start / stop the game clock
`F2`	Next period
`F3` / `F4`	Shot clock (American football: play clock) full reset / short reset. Where the short reset equals the full time (for example 30 / 30) there is only one reset action and `F4` stays free.
`F5` / `F6`	Timeout home / guest
`F7` / `F8`	Foul +1 / −1 home
`F9` / `F10`	Foul +1 / −1 guest
`F11`	Change possession (netball: Centre Pass)
`F12`	Undo

Key	Default action
`Num 7` / `Num 4` / `Num 1`	Home: first / second / third score type (e.g. +1 / +2 / +3); set sports: `Num 7` point home, `Num 1` point home −1
`Num 9` / `Num 6` / `Num 3`	Guest: the same score types; set sports: `Num 9` point guest, `Num 3` point guest −1
`Num 0` / `Num /` / `Num −`	Home: take back the first / second / third score type
`Num ,` / `Num *` / `Num +`	Guest: take back the first / second / third score type
`Num 5`	End the timeout (set sports)
`Num 2`	Horn

> **Note** While you type in a text box of aquaticsBoard 7 (team names, Info page, time settings), the numpad types digits and does not score. The shortcuts are switched off when you untick Global Shortcuts On.

The Actions of Each Sport

The editor lists the actions of the running sport, so it looks different for every sport:

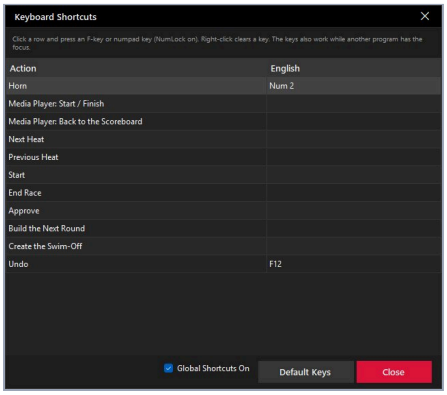


Figure 107. Swimming

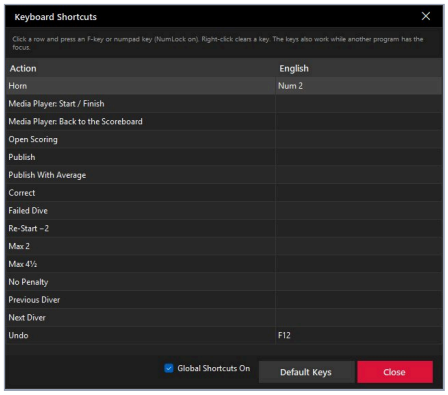


Figure 108. Diving

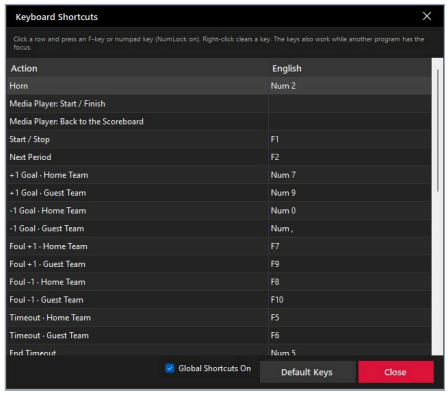


Figure 109. Water Polo

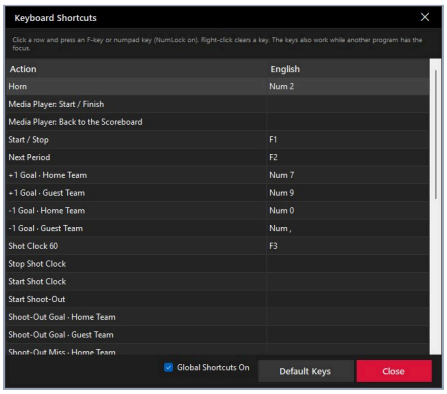


Figure 110. Canoe Polo

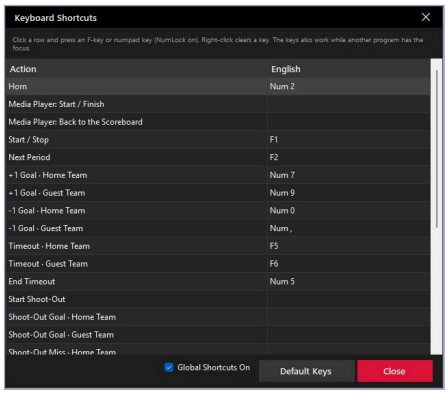


Figure 111. Underwater Rugby

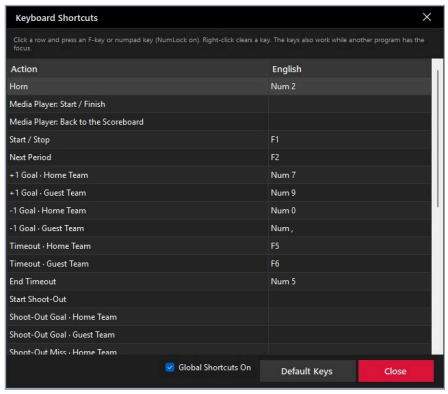


Figure 112. Underwater Hockey

16 Remote Control

Any phone, tablet or second PC on the same network can control the scoreboard in its web browser – no app to install. The built-in web server is on by default. The remote builds its buttons from the running sport and discipline, so one page serves every sport; the buttons of each sport are shown in the chapter of that sport.

Connecting a Phone or Tablet

1. Connect the phone to the same network (Wi-Fi) as the scoreboard PC.
2. Open **Settings** on the scoreboard PC. The **Remote Control** row shows **Running** and one or more addresses such as *http://192.168.1.50:1907/*, and the **PIN**.
3. Type that address into the phone's browser (use the address of the adapter that is on the phone's network).
4. Enter the PIN on the number pad and press ✓.
5. The remote opens with the running sport. Score, clock and period follow the scoreboard live.

> **Tip** Add the page to the home screen of the phone (browser menu → *Add to Home Screen*): it then opens full screen like an app.

Signing In

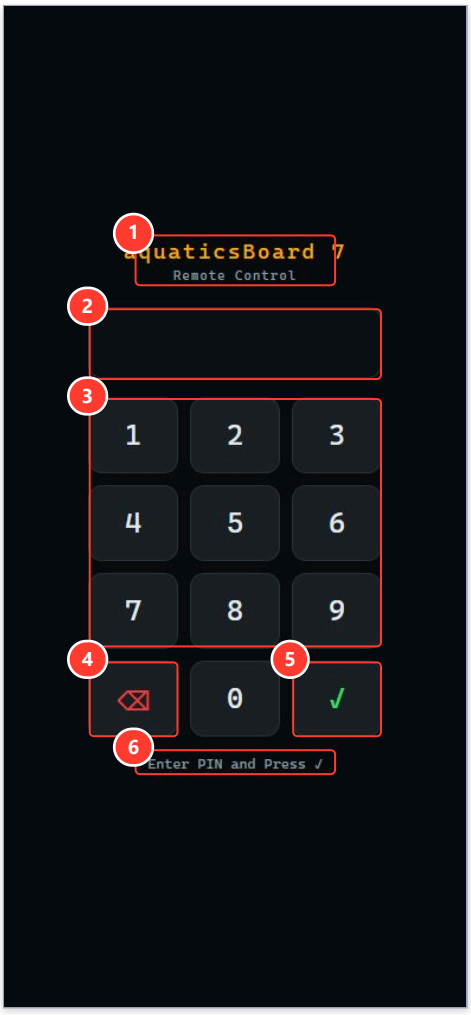


Figure 113. The sign-in page on a phone

#	Control	What it does
1	**Title**	The product name (aquaticsBoard 7) and *Remote Control*: you know at once which scoreboard you are signing in to.
2	**PIN display**	Shows a dot for every digit you typed (up to 8). The PIN itself is never shown.
3	**Number pad**	Tap the digits of the PIN. On a PC the number keys, `Backspace` and `Enter` work too.
4	**⌫ Delete**	Deletes the last digit.
5	**✓ Sign In**	Sends the PIN. Right: the panel opens. Wrong: the line below says so.
6	**Hint line**	“Enter PIN and Press ✓”, “Signing In…”, a wrong PIN, “No Connection to the Scoreboard”, or the lockout countdown “Too Many Wrong PINs. Wait … s”. These texts, like every text of the remote pages, are in the language of the program (see *Settings*).

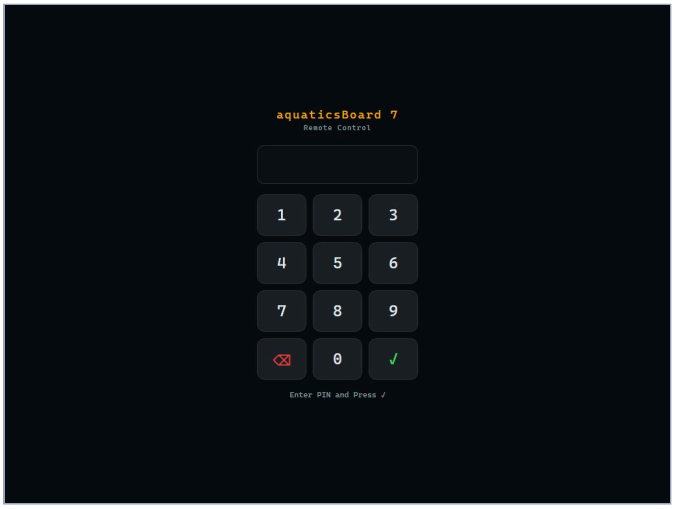


Figure 114. The same page on a tablet

- After five wrong PINs from one device it is locked for 30 seconds; every further wrong PIN doubles the wait, up to 15 minutes. The pad is disabled while the countdown runs.
- The sign-in lasts while the browser tab is open; a device that is still signed in skips the PIN page. Closing the tab ends it.
- An empty PIN in Settings switches the remote sign-in off.

The Remote Panel

On a tablet (or a phone held sideways, from 760 pixels width) the two teams stand side by side with two buttons per row, next to the Match column; on a phone held upright the two teams stay side by side and the Match and Match Control sections follow below, so you scroll down to them. The layout is the same in every sport:

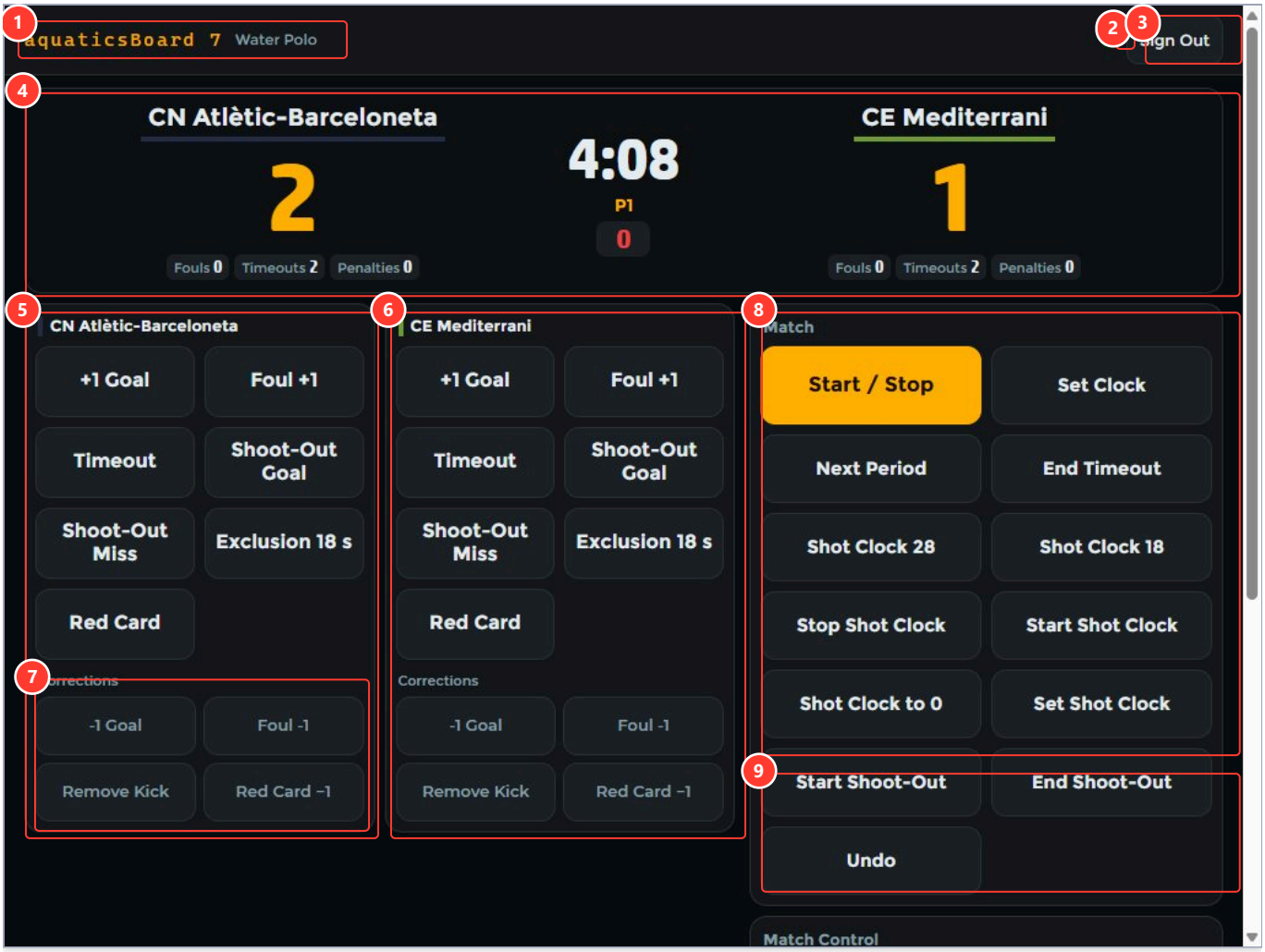


Figure 115. The remote panel on a tablet (Water Polo)

#	Control	What it does
1	**Title and sport**	The product name (aquaticsBoard 7), then the running sport and discipline (shown once when the discipline name already contains the sport, e.g. just *Football*; a long text takes two lines). The page rebuilds itself after a new match or a change of sport.
2	**Connection dot**	Green while the remote receives the scoreboard; red when the connection is lost (it reconnects by itself).
3	**Sign Out**	Asks “Sign Out?” and returns to the PIN page.
4	**Score**	Team names in their colours (a long name takes two lines instead of being cut), scores, clock, period, shot clock and chips such as fouls, timeouts or possession – live from the scoreboard. A **Penalties** chip (the number of running penalties) appears only in sports with timed penalties; netball shows **Centre Pass** instead of Possession.
5	**Home team**	The actions of the home team (goals or points, fouls, timeouts, cards …), headed by the team name (two buttons per row on a tablet, one on an upright phone). A score button shows its value once: *+2 Goal*, *+6 Goal*, *+1 Free Throw*. A long label wraps between words onto a second line.
6	**Guest team**	The same actions for the guest team.
7	**Corrections**	The −1 actions of the team (take back a goal, a foul, a card …), small so they are not hit by mistake.

#	Control	What it does
8	Match	Actions that belong to the match: **Start / Stop** (amber), Set Clock, Next Period, shot clock, timeouts, Undo … Actions that need a value (Set Clock) open an input sheet.
9	Match Control	Actions that reset or end something (**New Match** …). They always ask for a confirmation and cannot be undone from the remote.

- Every button does exactly what the same control on the panel does, including Undo. Several devices can be connected at the same time, also together with the operator at the PC.
- A refused action (for example a timeout when none is left) shows its reason in a red message at the bottom.
- The remote pages use the language of the program: headings (Match, Corrections, Match Control), the action labels, the chips, the sheets (OK / Cancel, Yes / No) and the messages are shown in the language chosen in Settings; the browser tab shows the product name and the sport.
- Swimming and diving have their own remote view (heat and lanes, or diver, judges and standings).
- At the end of the panel the **Media Player** block starts and stops the clips of the Media Player (see *Media Player*).

Running Penalties on the Remote

In sports with time penalties the phone lists the running penalties of a team under its buttons: number, time left and a red ✕ that takes exactly that penalty off early (the same as the ✕ on the Game page). The list appears only while a penalty runs.

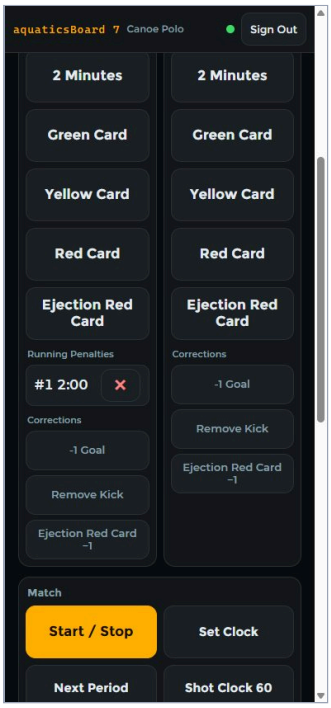


Figure 116. Canoe Polo: a running penalty on the phone

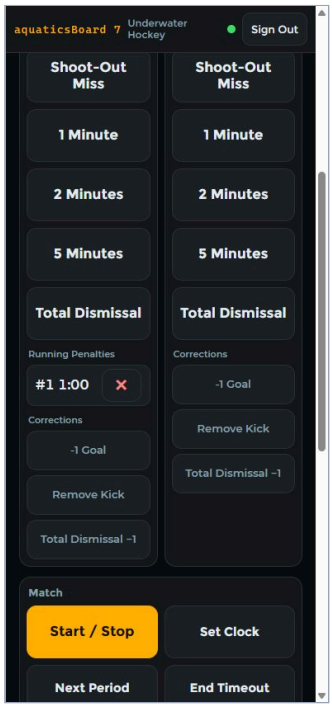


Figure 117. Underwater Hockey: a running penalty on the phone

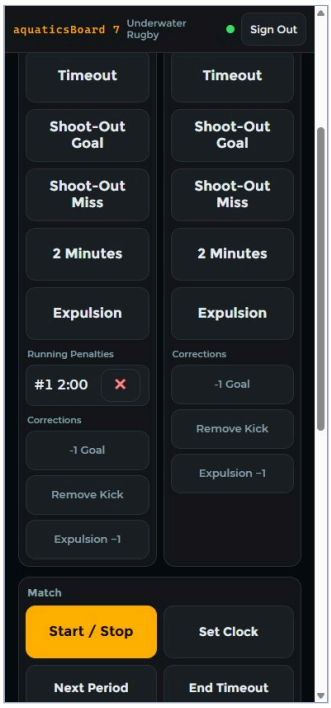


Figure 118. Underwater Rugby: a running penalty on the phone

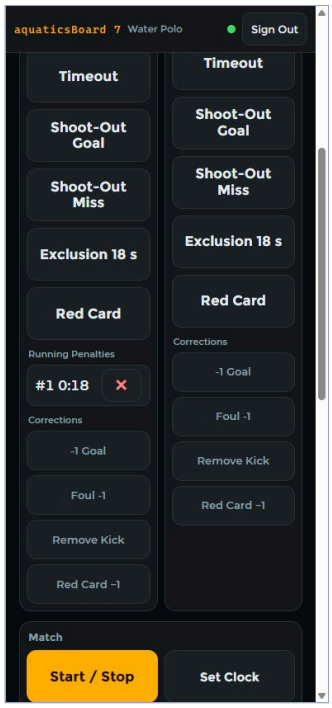


Figure 119. Water Polo: a running penalty on the phone

Input and Confirmation Sheets

Some buttons need more than a tap. The remote then shows a sheet at the bottom of the screen:

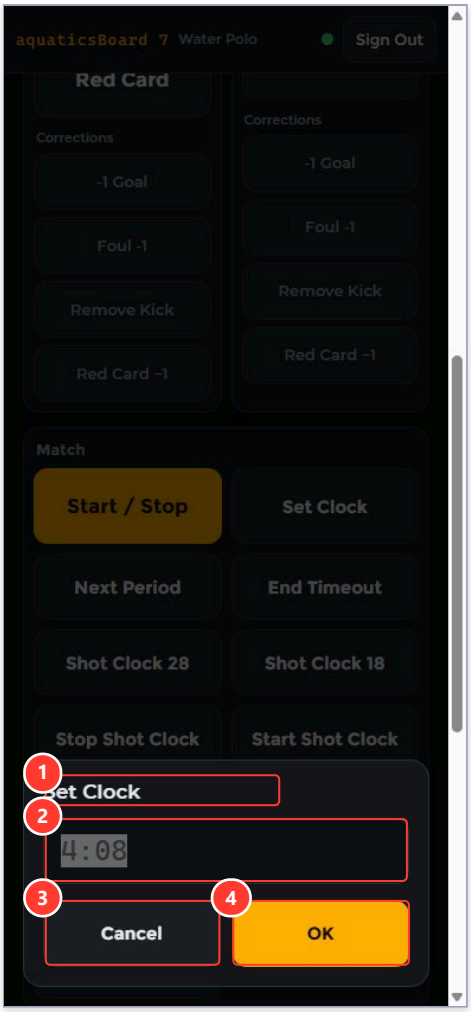


Figure 120. An input sheet (Set Clock) on a phone

#	Control	What it does
1	**Title**	The action, with the team where it belongs to one.
2	**Input**	Type the value (Set Clock: *m:ss*, the current time is filled in and selected). The phone shows its number keyboard. Where the value has a format of its own, the sheet shows an *Example:* … line above the box.
3	**Cancel**	Closes the sheet without a change (so does a tap outside the sheet).
4	**OK**	Sends the value (also `Enter`).

> **Note** Match Control actions (such as New Match) open a confirm sheet with the question, “This cannot be undone from the remote.”, **No** and a red **Yes** .

17 Data Exchange

Besides NDI (see *Outputs*), aquaticsBoard 7 offers three data channels for other software and devices. They are the same in every scoreboard product of the family and are described for developers in the separate integration API document.

Channel	Default	Switch	Use it for
HTTP API	TCP 1907	Settings → Remote Control (on by default)	Scripts, web pages, graphics systems that poll the state (vMix data source, CasparCG templates) and send commands. Needs the PIN.
Console link	TCP 1908	Settings → Console Integration → Console (TCP)	Table consoles and statistics software: one connection for many commands and the live state. Same PIN and the same lockout as the remote.
UDP broadcast	UDP 1909	Settings → Console Integration → UDP Broadcast, or UDP on the right strip	LED controllers and displays that only listen: every change is sent as JSON to the local network, no sign-in.

All channels use the same commands as the panel (for example *score.add*, *clock.toggle*, *timeout.take*) and the same data keys as the board designs (for example *home.score*, *clock.text*, *period.name*, *home.fouls*). The list of actions and keys of the running discipline is available from the HTTP API (*/api/catalog*).

> **Note** Commands only change the score with a POST request; a plain web link can never change the board. Allow TCP 1907 / 1908 in the Windows firewall of the scoreboard PC when other devices connect. UDP broadcast does not cross routers.

18 Connecting a Scoreboard Console or Timing System

aquaticsBoard 7 can take the clock, the scores and the results from the scoreboard console or the timing system that runs the match or the race: the console operator works as always, and aquaticsBoard 7 shows the values on its boards with its own designs, logos, player lists, info screens, sponsors, the CK overlay and NDI. One console type at a time (Settings → Console Input → Console Type); the types offered are those of the aquaticsBoard 7 sports.

> **Note** Every console type is **compatible with** the named product only: aquaticsBoard 7 is not made, endorsed or supported by the console makers and shows no logos. The drivers were written from public documents and tested with simulators of the consoles. Test the Console Input with your console before the first match (each brand section ends with a short test), and record a data log for support if anything differs.

Console Types in aquaticsBoard 7

Console type in Settings	Connection	Sports it drives
Daktronics All Sport 5000	RS-232 19200 8N1 (J5 / J6 / J-box) or a serial-to-Ethernet converter	All the team sports in the table above
Colorado Time Systems (System 5 / 6, Gen7)	RS-232 9600 8E1 (2400 for slow scoreboards), send only	Swimming (races); Water Polo
Daktronics OmniSport 2000	RS-232 19200 8N1 (J5 RTD port) or Ethernet	Swimming (races), Diving (judges' scores), Water Polo
Omega / Swiss Timing (ARES 21, Quantum)	serial 9600 (7E1 or 8N1)	Swimming (races)
Kazo Vision Ultra Score (Data Out)	UDP broadcast, port 2800	Swimming, Diving, Water Polo, Basketball, Handball, Futsal, Ice Hockey (also Ringette, Broomball), Volleyball, Beach and Snow Volleyball

Compatible with Daktronics All Sport 5000

Many sports halls already have a Daktronics All Sport 5000 control console on the scorer's table. aquaticsBoard 7 can read the console's **real-time data output** (RTD): the console operator runs the clock and the scores on the console as always, and aquaticsBoard 7 shows them on its boards – with its own designs, logos, player lists, info screens, sponsors, the CK overlay and NDI.

> **Note** **Compatible with the Daktronics All Sport 5000.** aquaticsBoard 7 is not made or supported by Daktronics. The console's data format is not published as an open standard; the Console Input was built from public documentation (the Daktronics *All Sport 5000 Series Enhanced RTD Reference Manual* ED-12483 and the All Sport 5000 operation manual ED-11976) and from open-source projects that read the same output, and it was tested with a console simulator. Please test it with your console before the first match (see *First Test with a Real Console* below).

What You Need

- An All Sport 5000 console with its sport insert, and its junction box (J-box) or the console's own I/O connector.

- A serial connection to the PC: the console's RTD is an RS-232 signal on its 9-pin **J5 Computer Port** / 25-pin **J6 I/O Port** and, through the 25-pin J-box, the "All Sport RS-232 data". Use a USB-RS-232 adapter (FTDI or Prolific chip) and a straight serial cable; the J6 port needs a 9-pin to 25-pin cable. Some installations bring the RTD as a current loop (pins 22 + and 7 – of the 25-pin connector) to a signal converter – then use that converter's RS-232 or USB output.
- Or a serial-to-Ethernet converter (serial device server) next to the console: aquaticsBoard 7 then connects over the network (**Network (TCP)**, raw TCP mode of the converter).
- The serial settings: **19200 baud, 8 data bits, no parity, 1 stop bit** (ED-12483). A few console sport codes send at **9600** (Daktronics names code 6604); choose 9600 then.
- Do not use the console's scoreboard outputs (the signal to the scoreboards, pins 14–19): they carry another format and show only garbage in the data monitor.

> **Tip** Which pins and ports carry the RTD differs between console revisions and J-box types. If the data monitor shows no packets, ask the Daktronics dealer which port of your console and J-box carries the "RTD" or "real-time data" RS-232 output.

Switching the Console Input On

1. Connect the console (or its J-box) to the PC and check in the Windows Device Manager which COM port the adapter got.
2. On the console, choose the sport (the sport insert and its code, for example 1101 for basketball) as you always do. Make sure the console's clock direction and period length are the same as in aquaticsBoard 7's **Time Settings** for the discipline.
3. In aquaticsBoard 7, choose the sport and discipline (Game page → sport button).
4. Open **Settings** ⚙. In the **Console Input** row choose **Daktronics All Sport 5000**, **Serial Port (COM)**, the COM port and **19200**; leave **Console Sport** on **Auto**.
5. Tick **On** and click **Apply**. The indicator next to Settings in the tab strip turns amber (*Console: Waiting for Data*) and green (*Console Control · Receiving*) as soon as valid data arrives.
6. **At every start of aquaticsBoard 7 the Console Input is Off** – also after the program restored an unfinished match. The connection settings are kept: open Settings, tick **On** and click **Apply** again when the console is to take over. So a program start never hands the match to a console by surprise.
7. If the board does not fill in at once, change any value on the console once (for example start and stop the clock): the console sends what changes, and from time to time a full update.

The Console Input Row

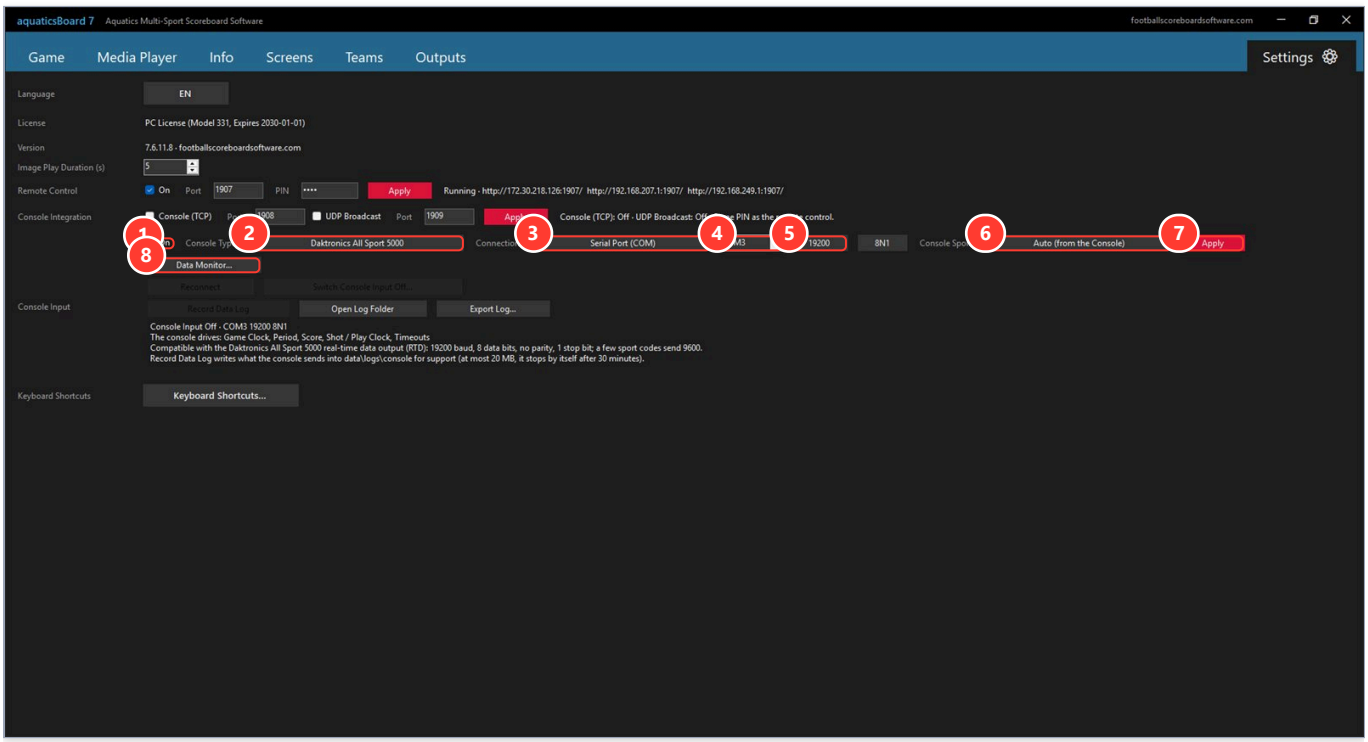


Figure 121. Settings page – Console Input set up for a USB-serial adapter on COM3 (not switched on yet)

#	Control	What it does
1	On	Switches the Console Input on. Switching it off while the console has control asks first (Yes / No).
2	Console Type	The console the program reads: **Daktronics All Sport 5000** here (compatible: the program reads the console's real-time data output). The other types of aquaticsBoard 7 are in *Console Types in aquaticsBoard 7*.
3	Connection	**Serial Port (COM)** for a USB-serial adapter or a built-in COM port; **Network (TCP)** for a serial-to-Ethernet converter (address:port).
4	COM port	The COM port of the adapter (the list shows the ports Windows has; a port that appears later can be typed).
5	Baud rate	**19200** for the All Sport 5000 (8 data bits, no parity, 1 stop bit). Choose **9600** only for a console sport code that sends at 9600 (for example football code 6604).
6	Console Sport	**Auto**: the program takes the sport from the code the console sends, otherwise the console sport that belongs to the sport you play (see the table). Choose a console sport only when the console runs another sport than the table says.
7	Apply	Saves the Console Input settings and (re)connects.
8	Data Monitor...	Opens the data monitor for installers (see below).

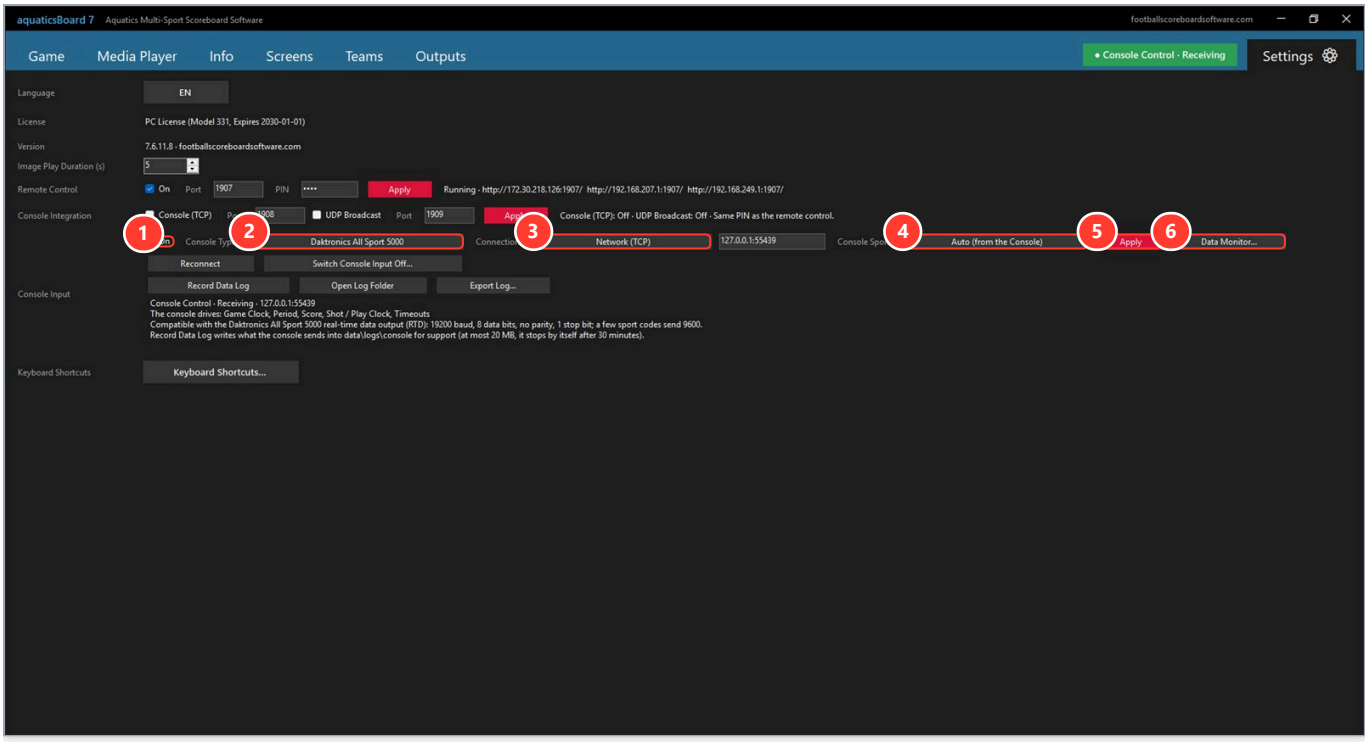


Figure 122. Settings page – Console Input on and receiving (here from the console simulator over the network)

#	Control	What it does
1	On	Switches the Console Input on. Switching it off while the console has control asks first (Yes / No).
2	Console Type	The console the program reads: **Daktronics All Sport 5000** here (compatible: the program reads the console's real-time data output). The other types of aquaticsBoard 7 are in *Console Types in aquaticsBoard 7*.
3	Connection	**Network (TCP)**: the program connects to a serial-to-Ethernet converter (or to a console simulator) at address:port.
4	Console Sport	**Auto**: the program takes the sport from the code the console sends, otherwise the console sport that belongs to the sport you play (see the table). Choose a console sport only when the console runs another sport than the table says.
5	Apply	Saves the Console Input settings and (re)connects.
6	Data Monitor...	Opens the data monitor for installers (see below).

Which Sport the Console Must Run

The console arranges its data by the sport selected on the console, so the console sport must fit the sport you play in aquaticsBoard 7. Full data packets carry the console's sport code; with **Console Sport: Auto** aquaticsBoard 7 uses it. The table shows what the console drives in each sport of aquaticsBoard 7; everything else stays on the panel.

Sports and Console Data

Sport in aquaticsBoard 7	Console sport (code)	What the console drives
Swimming	–	No – swimming uses a timing console type (Colorado, OmniSport 2000, Omega, Kazo).
Diving	–	No – judged sport.

Sport in aquaticsBoard 7	Console sport (code)	What the console drives
Water Polo	Water Polo (4498)	Game clock and running state, quarter, score, shot clock, timeouts left (exclusions stay on the panel)
Canoe Polo	Water Polo (4498)	Game clock and running state, half, score, shot clock
Underwater Rugby	Water Polo (4498)	Game clock and running state, half, score, timeouts left
Underwater Hockey	Water Polo (4498)	Game clock and running state, half, score, timeouts left

First Test with a Real Console

Because the Console Input was built from public documentation and a simulator, test it once with your console before the first match (about 15 minutes):

1. Connect the console, set up the Console Input as above and open the data monitor. **Packets** must rise and **Checksum Errors** stay at 0. Note the **Console Sport Code**.
2. Start and stop the clock on the console: the clock in aquaticsBoard 7 must start and stop with it and show the same time (at most a second apart above one minute, a few tenths below).
3. Set the clock on the console to another value: aquaticsBoard 7 follows within a second.
4. Add points for both teams, one at a time and several at once; take one back: the scores must match.
5. Change the period, add team fouls, take a timeout for each team, switch possession, run the shot clock (where the sport has them): every value must match.
6. Pull the cable: *Console Data Lost* after 3 seconds, the buttons stay locked. Plug it in again: green again (or click the indicator › Reconnect).
7. Close aquaticsBoard 7 and start it again: the Console Input is Off; switch it on in Settings and the console takes over again.
8. Click **Record Data Log** during a few minutes of a test match and keep the export: if anything differs, send it to support with a note of what the console showed.

> **Tip** If the scores are right but the clock is off by a whole period, the console and the discipline count in different directions or have another period length: set the Time Settings of the discipline to the console's values.

Who Controls What

Once aquaticsBoard 7 receives valid data from the console, **the console has control**: the values the console drives (see the table) come only from the console.

- On the Game page the buttons of those values are greyed out and do nothing: clock start / stop and Set Clock, period buttons, score buttons, shot clock, team fouls, timeouts, possession, down / distance – depending on the sport.
- New Match, another sport or discipline, Time Settings and Undo are not possible while the console has control (a message says so); they would change values the console drives. In swimming and diving the same holds for **Import…**, **Open Competition…** and **Edit Competition** › Save: they would replace the meet the console is timing.
- **The console's values win.** When the console shows more periods, a longer period, more timeouts or another clock than the rules of the discipline allow, aquaticsBoard 7 shows what the console shows. Set the console right if the board must follow the rules.

- The keyboard shortcuts, the remote control and the HTTP API cannot change these values either: the program answers *Console Control Active*. The remote shows a green bar *Console Control · Receiving* and greys out the same buttons.
- Everything the console does not send stays with the operator: team names, logos, colours, player lists, penalties and cards where the table does not list them, info screens, announcements, the Media Player, sponsors, outputs and designs.
- **Full Time in sports with added time** (soccer, rugby, Gaelic games, Australian Rules, International Rules): a console has no full-time signal – its clock only stops. When the console's clock is stopped at or past the end of the last period and the match can end (a team leads, or a draw is the result), **Next Period** (`F2`, or Next Period on the remote) is free for you: it gives Full Time and the winner. If the console's clock runs again, the match goes on. A level score that goes to extra time stays with the console.

> **Note** There is no override from the panel while the console has control. To correct a value, correct it on the console. To take over by hand, switch the Console Input off: click the indicator › **Switch Console Input Off…** › **Yes** . Only this releases the console's control – **Apply** , **No** , **Reconnect** or another console type leave it with the console.

The Game Page under Console Control

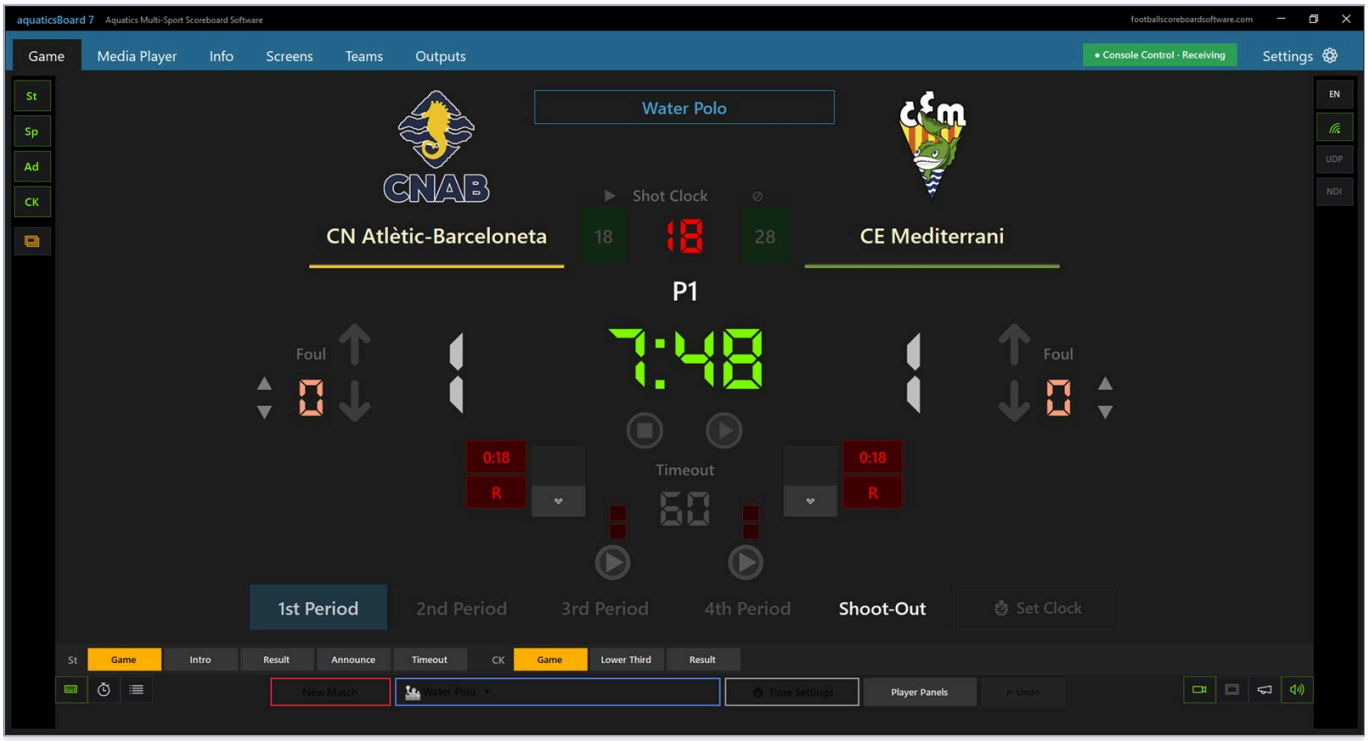


Figure 123. Water Polo under console control: the console-driven buttons are greyed out

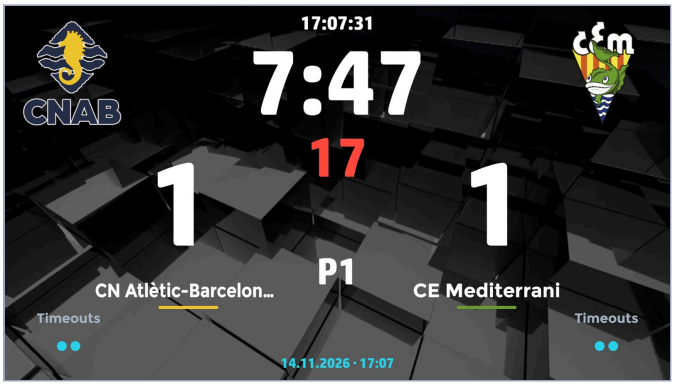


Figure 124. The St board follows the console

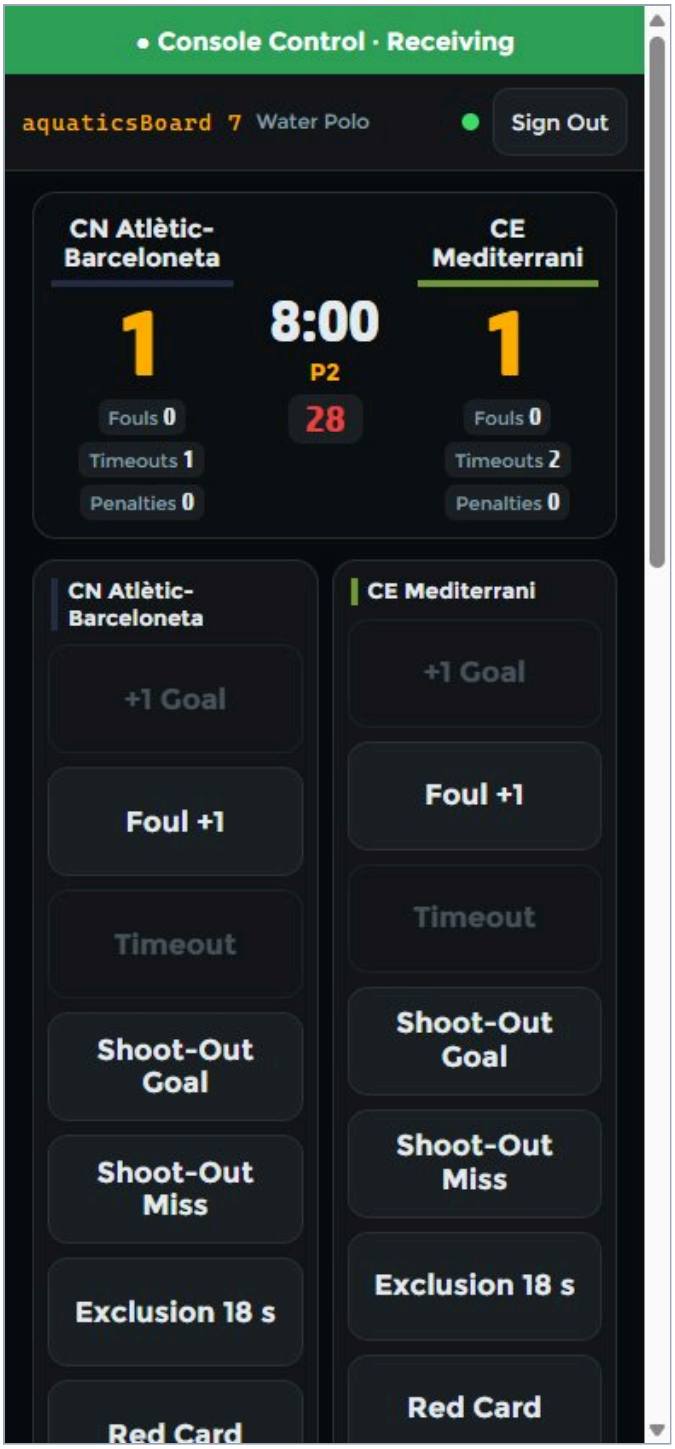


Figure 125. The remote control: the console bar and the greyed-out buttons

The Console Indicator

The indicator next to Settings in the tab strip shows the console's state: green *Console Control · Receiving*, amber *Console: Waiting for Data* (or a message, see below), red and blinking *Console Data Lost / Console Port Error*. A long message ends with "…" – point at it for the whole text. **Click it** for the menu:

- **Reconnect** – opens the connection again (the cable or converter was replaced). The console keeps control; the data take over again as soon as they arrive.
- **Data Monitor…** – the monitor for installers (see below).
- **Switch Console Input Off…** – asks first; **Yes** hands the match to the panel with the last console values, **No** changes nothing.

The same three buttons are on the Settings page (Console Input row) and at the bottom of the data monitor, so you always have a way out.

The Indicator Menu

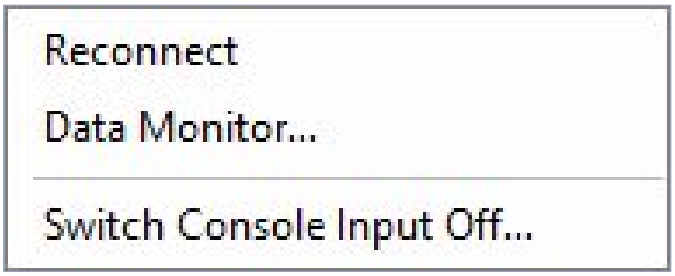


Figure 126. Click the indicator: Reconnect, Data Monitor..., Switch Console Input Off...

When the Console Runs Another Sport

The console must run the sport you play in aquaticsBoard 7 (see the table). If its data say another sport – for example a console still set to basketball while you play volleyball – aquaticsBoard 7 does not read them with a wrong table and does not lock anything: the indicator turns amber with *The console sends Basketball: set the console to Volleyball or choose Console Sport*. The same message is on the Settings page, in the data monitor and on the remote's console bar. Set the sport on the console (or choose Console Sport in Settings) and the console takes over.

A console type that has no table for the sport you play (for example a basketball console while you score cricket) shows the amber *Console: Receiving (Not Used for This Sport)*; the panel works as usual.

If the console is switched to another sport while it has control, the lock stays (only Off + Yes releases it) and the message tells what to do. After a pause of 20 seconds or more in the data, an All Sport 5000 is read again only after its next full packet has told its sport.

Another Sport on the Console

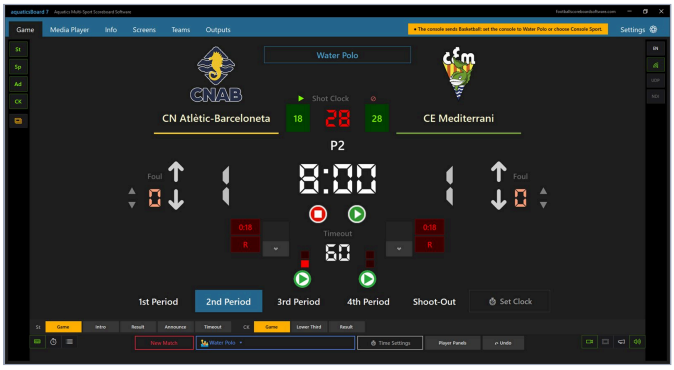


Figure 127. The console sends another sport: amber message, nothing locked

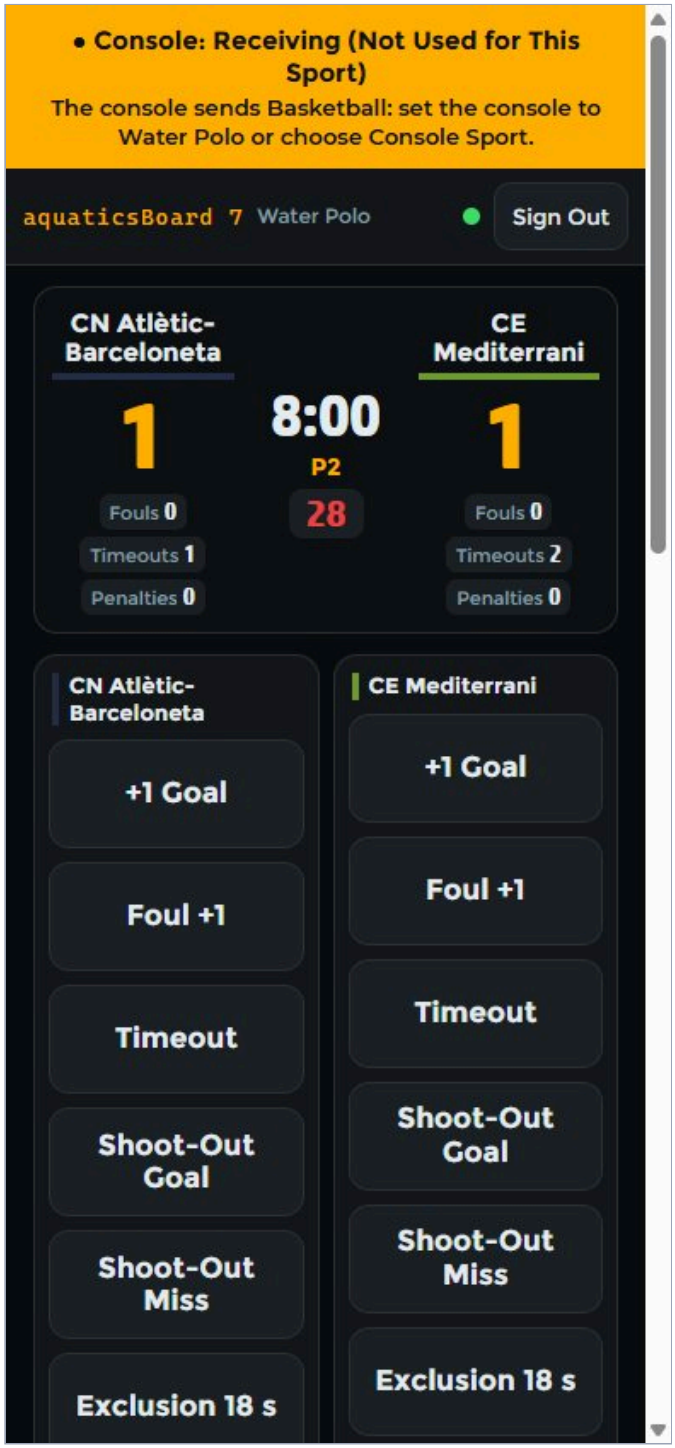


Figure 128. The remote's console bar with the same message

When the Console Data Stop

If no valid data arrive for 3 seconds (cable pulled, console switched off, adapter removed), the indicator turns red and blinks: **Console Data Lost**. The board keeps the last values, a running clock goes on, and **the console keeps control** – the buttons stay greyed out, so that the board never shows values nobody controls.

A running clock that reaches 0:00 while the data are lost **holds there**: the period does not end and no result is shown (no *End of Q4*, no *Match Won*) until the console's data say what happened – the console may have stopped the clock a second earlier.

- When the data come back, the console takes over again at once; nothing else is needed. The program reconnects to the COM port or converter by itself every 2 seconds.
- Click the indicator › **Reconnect** after replacing a cable or converter (the program also tries by itself every 2 seconds).
- If the console cannot be brought back, switch the Console Input off: click the indicator › **Switch Console Input Off…** › **Yes** (or Settings → untick **On** → **Apply** → **Yes**). The panel takes over with the last console values (score, period, clock). **No** leaves everything with the console.
- Swimming: if aquaticsBoard 7 closed unexpectedly during a race the console started, the restored heat goes on racing; switch the Console Input on again and the console's finals and its official end complete the heat.
- When valid data arrive again while the Console Input is on, the console takes control again.

Data Lost and Switching Off

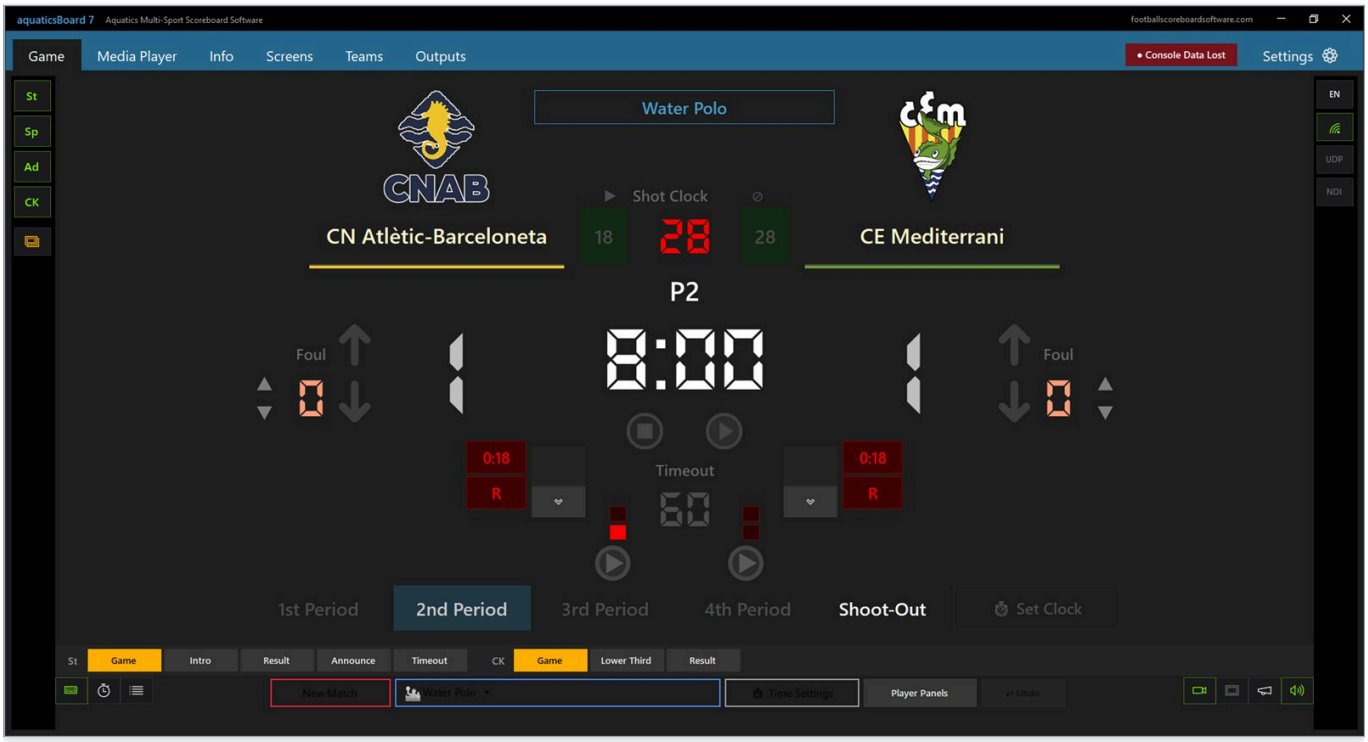


Figure 129. Console Data Lost: the last values stay, the buttons stay locked

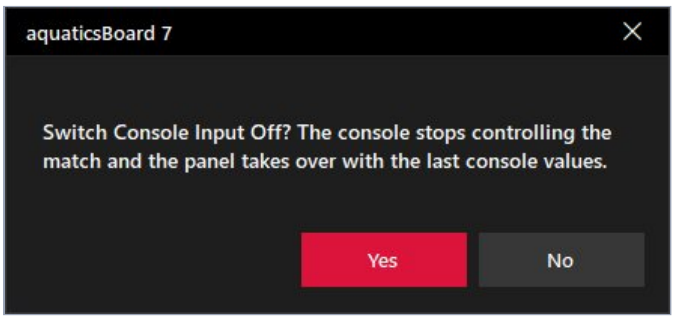


Figure 130. Switching the Console Input off asks first

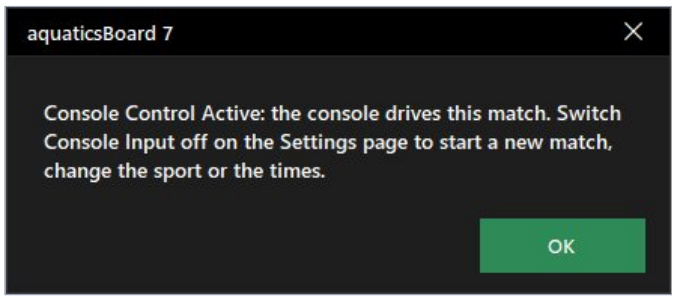


Figure 131. New Match, sport and Time Settings wait while the console has control

The Data Monitor (for Installers)

Click the console indicator, or **Data Monitor…** on the Settings page. The monitor shows the connection and its counters, the console's sport code, every field of the console sport with its raw value, the values aquaticsBoard 7 reads from them, and the last frames as received.

- **Packets** rising: the console data arrive and are valid.

- **Checksum Errors** or **Broken Frames** rising: wrong baud rate, a bad cable or interference.
- **Bytes** rising but no packets: wrong port of the console (scoreboard output instead of RTD) or wrong baud rate.
- **Console Sport Code**: the code the console runs; **Console Sport**: the table aquaticsBoard 7 uses for it.
- **Last Refused Value**: a console value the program could not take over (for example a score after the match was ended by the panel); the other values go on.
- A note line says what the program needs (for example *Event 9 Heat 1 of the console is not in the program*); the remote's console bar shows it too.
- **Reconnect** and **Switch Console Input Off...** at the bottom work as in the indicator menu.
- **Record Data Log** writes what the console sends and what the program does with it into *data\logs\console* (see *Recording a Data Log for Support*).

The Data Monitor Window

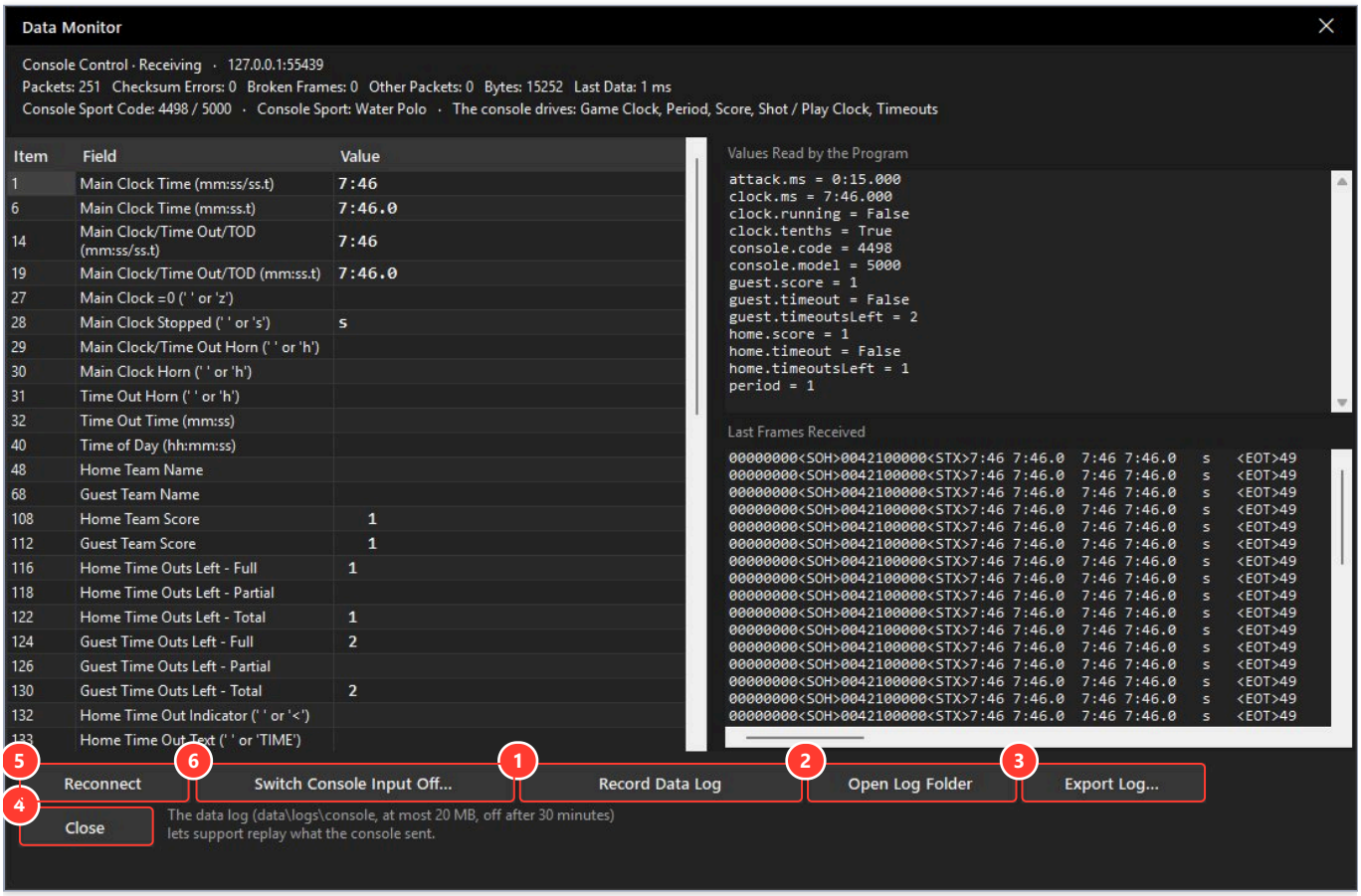


Figure 132. The data monitor: status and counters, the fields of the console sport, the values read and the last frames

#	Control	What it does
1	**Record Data Log**	Starts / stops the data log for support (see *Recording a Data Log for Support*).
2	**Open Log Folder**	Opens data\logs\console in Explorer.
3	**Export Log...**	Saves all console logs as one zip file to send to support.
4	**Close**	Closes the monitor (also `Esc`). The Console Input keeps running.
5	**Reconnect**	Opens the connection again; the console keeps control.
6	**Switch Console Input Off...**	Asks first; Yes hands the match to the panel.

Troubleshooting the Console Input

Problem	What to do
The indicator stays amber (Waiting for Data).	Wrong COM port, wrong console port (use the RTD / RS-232 output, not the scoreboard output), or the console sends nothing yet: change a value on the console (start and stop the clock).
Console Port Error.	The COM port does not exist or another program uses it (close terminal programs or other scoreboard software). Check the Device Manager.
Bytes rise but no packets; checksum errors rise.	Wrong baud rate: try 9600 / 19200. Check the cable (a null-modem cable may be needed between some adapters and J-boxes).
Amber: *The console sends …*	The console runs another sport than aquaticsBoard 7: set the sport on the console or choose Console Sport in Settings (nothing is locked meanwhile).
Amber: *Console: Receiving (Not Used for This Sport)*	This console type has no table for the sport you play: the panel works as usual.
The indicator says Off after a restart.	Correct: the Console Input is Off at every start. Settings → tick On → Apply.
The match does not end in a sport with added time.	Stop the clock on the console, then Next Period (`F2` or the remote) gives Full Time.
Green, but nothing changes on the board.	The sport in aquaticsBoard 7 has no console data (see the table): check the Console Sport Code in the monitor and set Console Sport, or choose the matching sport in aquaticsBoard 7.
The clock differs from the Time Settings.	The console's values win: the board shows the console's period length and clock. Set the console (or the Time Settings) to the same values.
A team's score is right but the score types (2 / 3 points, try / conversion) are wrong in the statistics.	The console sends only totals; the program guesses the type from each change. Totals on the board are always right.
I must take over by hand during the match.	Click the indicator › Switch Console Input Off… › Yes. The panel continues with the last console values. Apply, No and Reconnect leave the console in control.

Compatible with Colorado Time Systems (System 5 / 6, Gen7)

Pools with a Colorado Time Systems timing console (System 5, System 6, or a Gen7 with its RS-232 scoreboard jack) – or a Daktronics OmniSport 2000 whose RTD port is set to **CTS** – send the scoreboard stream of the console. aquaticsBoard 7 reads it like a scoreboard does and takes the event, the heat, the start and the touches into its swimming desk; the names come from the program's start list.

> **Note Compatible with the Colorado Time Systems (System 5 / 6, Gen7).** aquaticsBoard 7 is not made or supported by the console's maker and shows no logos. The driver was written from public documents and tested with a simulator only: test it once with the console (see the steps below).

What You Need

- The console's **scoreboard output** (the 1/4-inch phone jack "Scoreboard" on System 5 / 6, the RS-232 scoreboard jack of a Gen7) and a cable from the jack to a 9-pin RS-232 plug (tip = data, sleeve = ground) with a USB-RS-232 adapter.
- The serial settings: **9600 baud, 8 data bits, even parity, 1 stop bit** (8E1). Slow scoreboards run at **2400**.

- A start list in aquaticsBoard 7: import the meet's Lenex file or build the program in the competition editor, with the same event and heat numbers as the console.

Settings in aquaticsBoard 7

Console Type **Colorado Time Systems (System 5 / 6, Gen7)** · Serial Port (COM) · the COM port · **9600** · **8E1** · Console Sport **Auto** (Swimming for swimming, Water Polo for water polo).

On the Console

- Leave the scoreboard output on (it always sends).
- Run the meet on the console as usual: the console's event and heat numbers must match the start list in aquaticsBoard 7.
- Water polo: the console in its water polo mode.

What the Console Drives

Sport in aquaticsBoard 7	What the console drives
Swimming	Event and heat (the program calls the same heat of its start list), the start (at the console's running time), every touch: the 50 m splits and the final time (counted against the event's lengths), recall when the console is reset before anybody finished. Not sent: DQ, DNS, DNF and the official end – the desk marks them and the Referee approves as usual.
Water Polo	Game clock (running when it changes), period, score (blue = home, white = guest), shot clock, timeouts left. Exclusions and player fouls stay on the panel.

The console-driven values are locked for the panel, the hot keys, the remote and the API while the data arrive (see *Who Controls What*); data lost keeps the lock; only Console Input Off with Yes unlocks.

Pictures

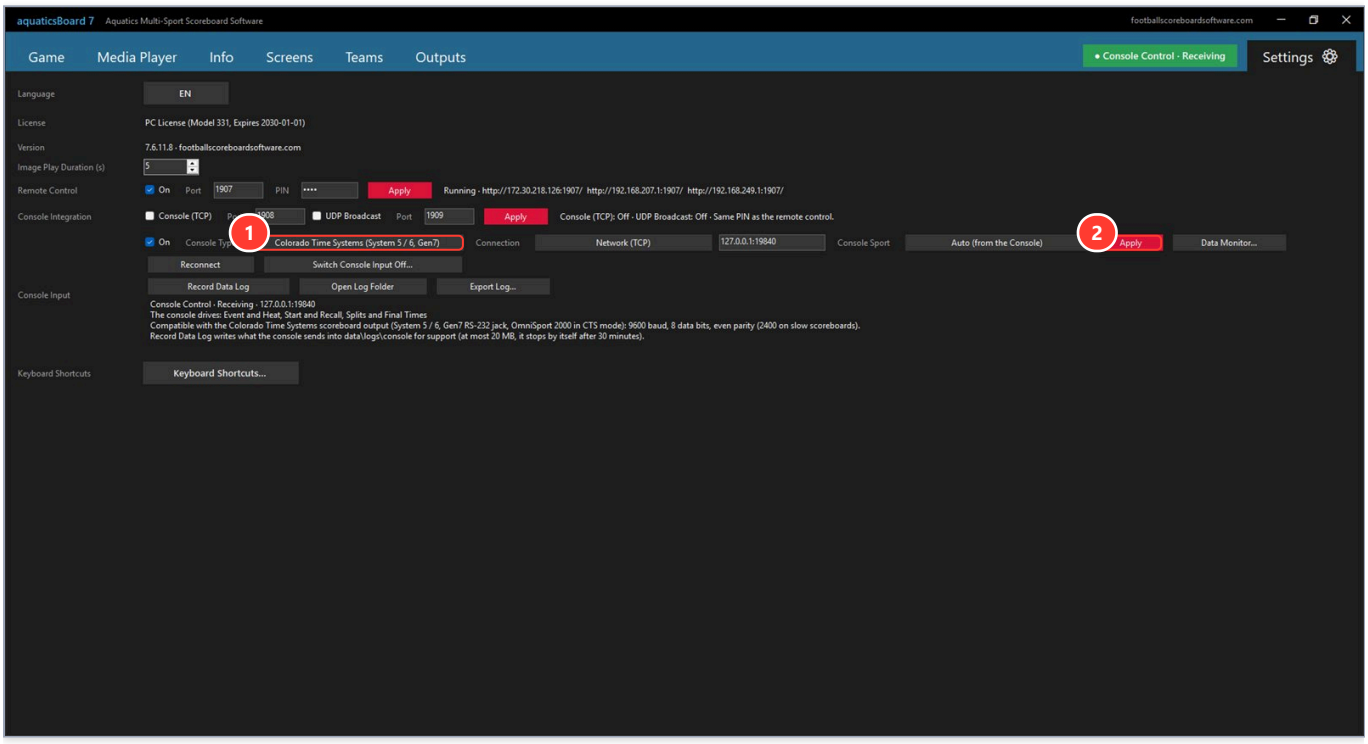


Figure 133. Settings – Colorado Time Systems (System 5 / 6, Gen7) receiving (Swimming, built-in simulator)

#	Control	What it does
1	**Console Type**	The console type (only the types of the aquaticsBoard 7 sports are listed).
2	**Apply**	Saves and (re)connects; another console type sets its documented line settings.

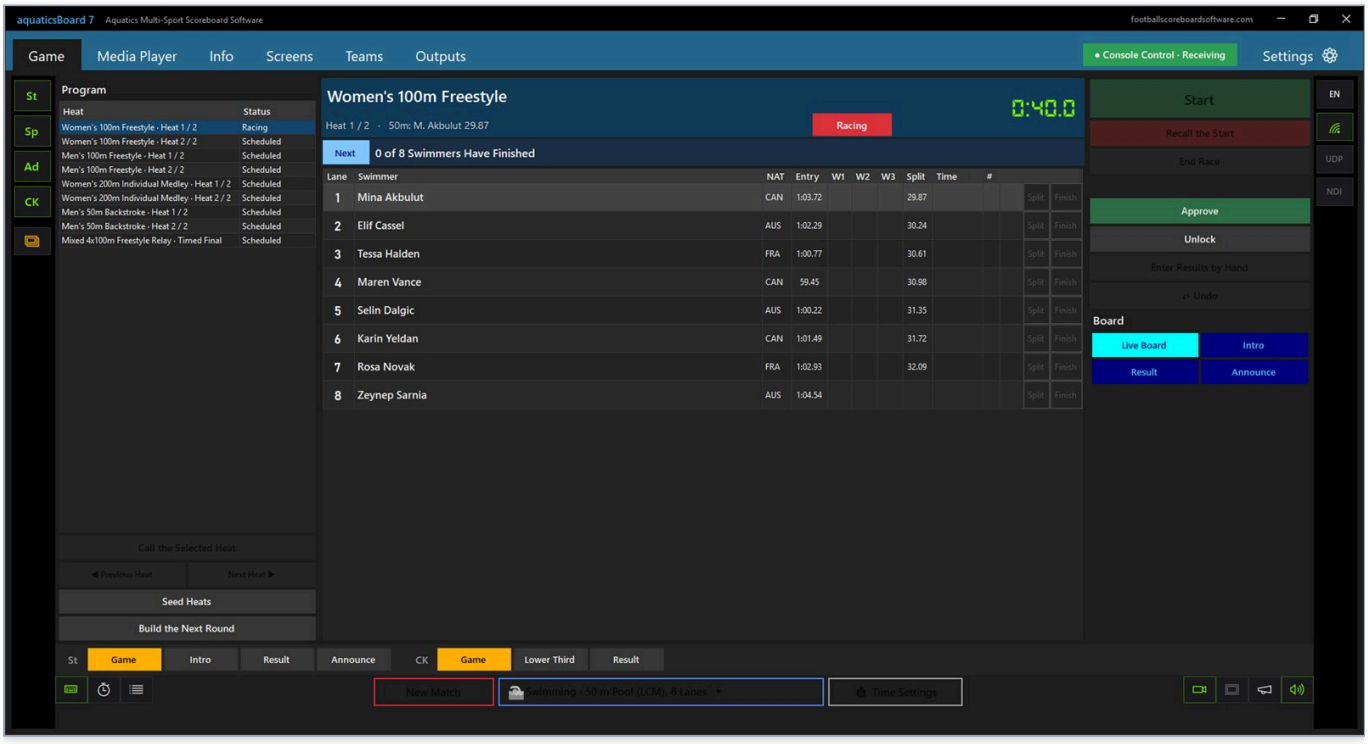


Figure 134. Swimming under the control of the Colorado Time Systems (System 5 / 6, Gen7)

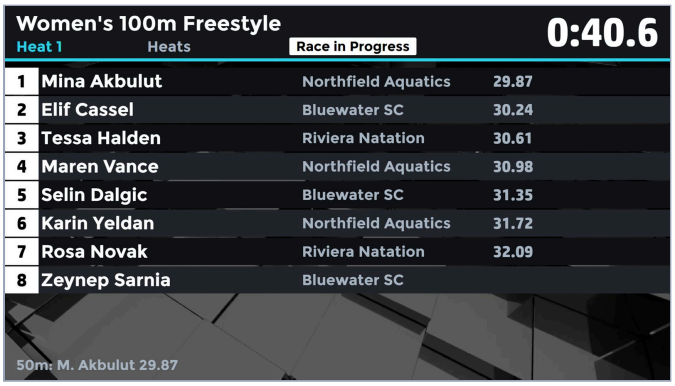


Figure 135. The St board follows the console

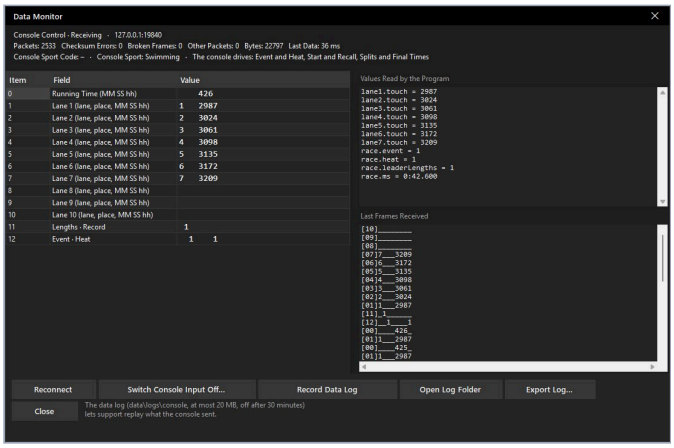


Figure 136. The data monitor with the console's fields

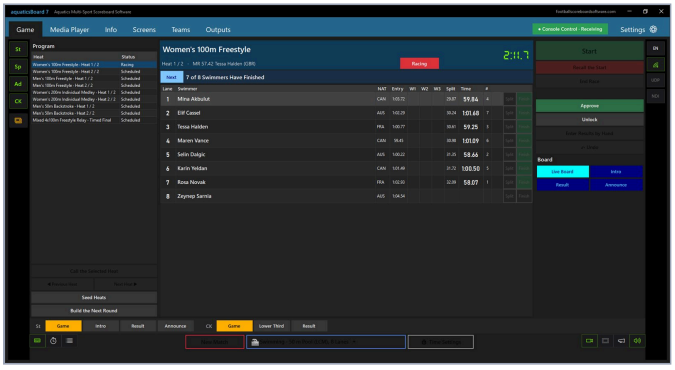


Figure 137. After the race / dives

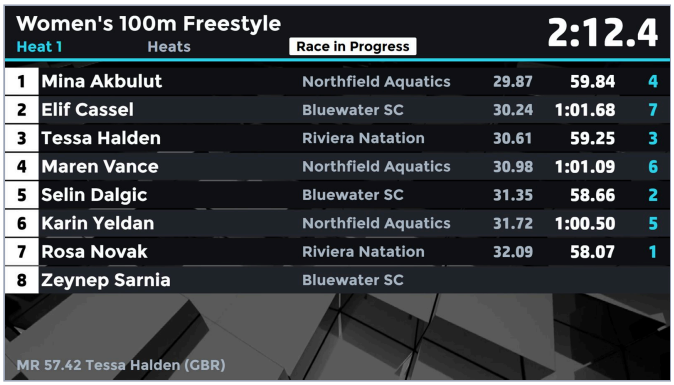


Figure 138. The St board with the results

Not Verified Yet

- The Gen7 RS-485 scoreboard data are encrypted and are not read: use the RS-232 jack or a System 5 / 6.
- The format characters (separators) and the channel ranges for the lanes that hold a split are not used.
- Which touches the console shows depends on its settings (hold times, splits on / off): the program counts the touches against the event's lengths.
- Water polo channels (scores, shot clock, timeouts, period) and blue = home: from one public description – test them.
- Diving and track modes of the console are not read.

First Test on Site

1. Connect, open the data monitor: channels 0 (running time), 1–10 (lanes) and 12 (event · heat) appear and change.
2. Call a heat on the console: aquaticsBoard 7 calls the same event and heat.
3. Start a race: the program's race starts with the console's running time.
4. Let a swimmer touch at 50 m and at the finish: the split and the final time appear in the desk.
5. Record a data log of a few races and keep it (see *Recording a Data Log for Support*).

Compatible with Daktronics OmniSport 2000

The Daktronics OmniSport 2000 (swimming, diving, water polo) sends its real-time data (RTD) like the All Sport 5000, with its own item numbers. aquaticsBoard 7 reads the swimming lines (lane, place, split / finish time, lengths), the diving judges' scores and the water polo clock.

> **Note** **Compatible with the Daktronics OmniSport 2000.** aquaticsBoard 7 is not made or supported by the console's maker and shows no logos. The driver was written from public documents and tested with a simulator only: test it once with the console (see the steps below).

What You Need

- The console's **J5 RTD PORT** (RS-232) and a USB-RS-232 adapter, or its **ETHERNET** jack (the program connects to the console's IP address and RTD port, default 3001: Network (TCP)).
- The serial settings: **19200 baud, 8 data bits, no parity** (ED-13312, appendix D).
- Swimming: a start list in aquaticsBoard 7 with the same event and heat numbers.

Settings in aquaticsBoard 7

Console Type **Daktronics OmniSport 2000** · Serial Port (COM) and 19200, or Network (TCP) with the console's address and port · Console Sport **Auto** (OmniSport 2000 Swimming / Diving / Water Polo); choose an **OmniSport 6000** sport when the console sends OmniSport 6000 item numbers.

On the Console

- Menu **Setup** → **Comm Ports** → **RTD Port**: **RTD** (not CTS).
- Menu **RTD / Matrix** → **RTD Offset**: **0K** (other offsets are read too).
- Results order **Lane** is the simplest for the program (Place works too).
- Show DQ on, so that a disqualification appears in the time field.

What the Console Drives

Sport in aquaticsBoard 7	What the console drives
Swimming	Event and heat, the start, splits and final times (the lane's lengths against the maximum lengths), DQ ("DQ" in the time), the official end ("Official Results") – the program approves the heat.
Diving	The current diver (found by name in the running order of the round), the judges' scores for their seats, the dive's points publish the dive (with fewer scores than judges: Publish Anyway). The dive list and the DD stay those of the program.
Water Polo	Game clock, period, score, shot clock, timeouts left (full + partial). Exclusions stay on the panel.
Canoe Polo	Game clock, period, score, shot clock.
Underwater Rugby	Game clock, period, score, timeouts left.
Underwater Hockey	Game clock, period, score, timeouts left.

The console-driven values are locked for the panel, the hot keys, the remote and the API while the data arrive (see *Who Controls What*); data lost keeps the lock; only Console Input Off with Yes unlocks.

Pictures

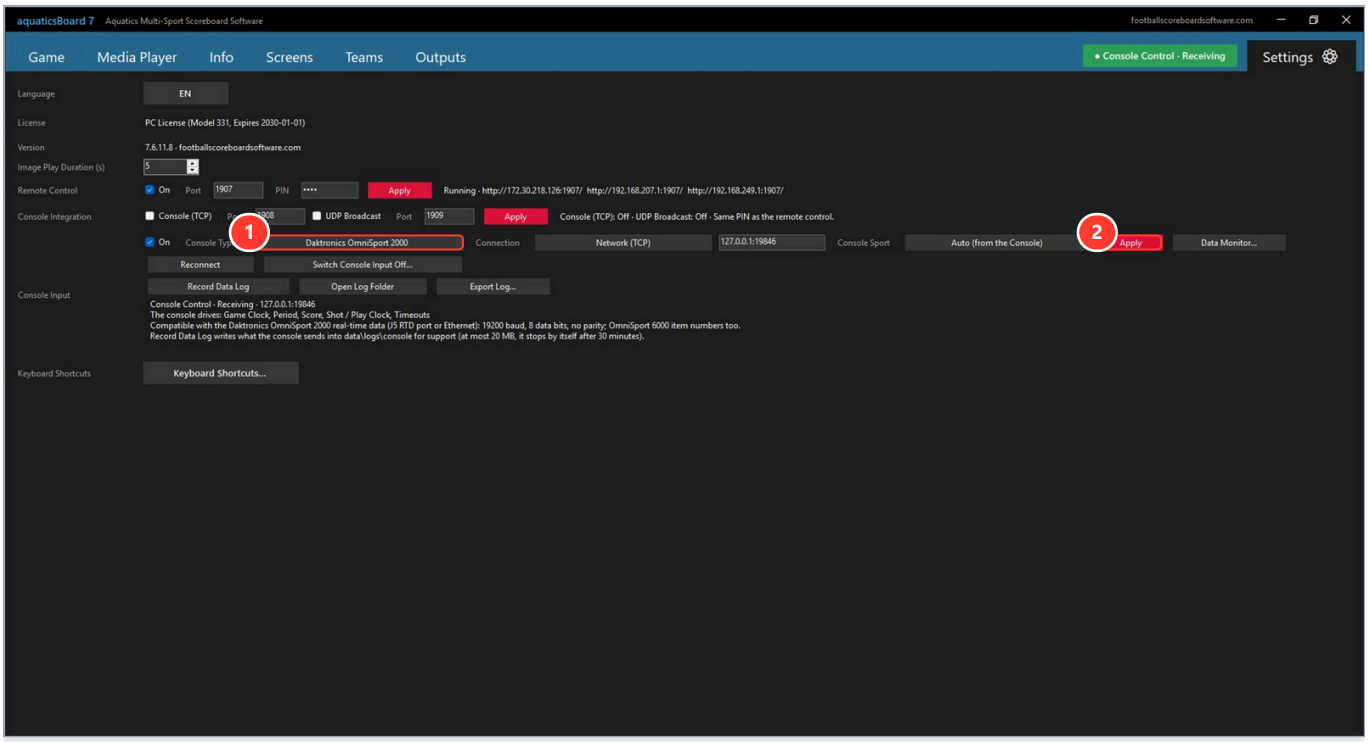


Figure 139. Settings – Daktronics OmniSport 2000 receiving (Water Polo, built-in simulator)

#	Control	What it does
1	**Console Type**	The console type (only the types of the aquaticsBoard 7 sports are listed).
2	**Apply**	Saves and (re)connects; another console type sets its documented line settings.

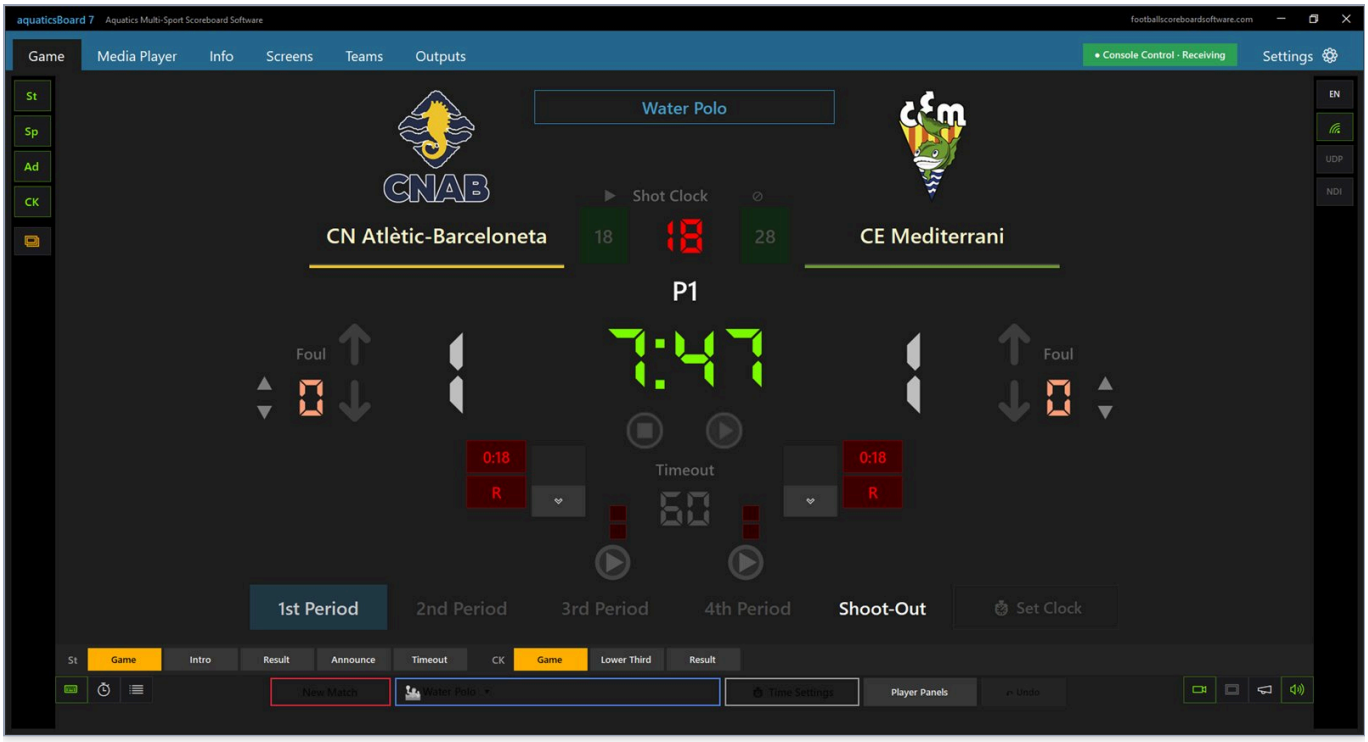


Figure 140. Water Polo under the control of the Daktronics OmniSport 2000

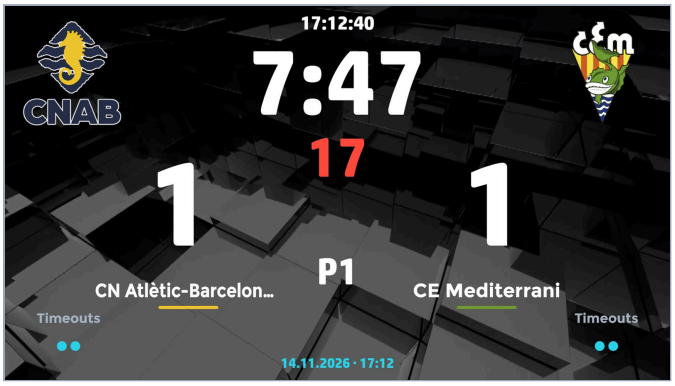


Figure 141. The St board follows the console

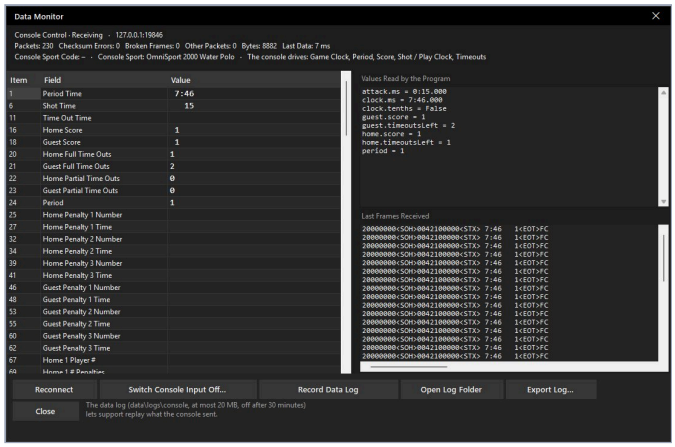


Figure 142. The data monitor with the console's fields

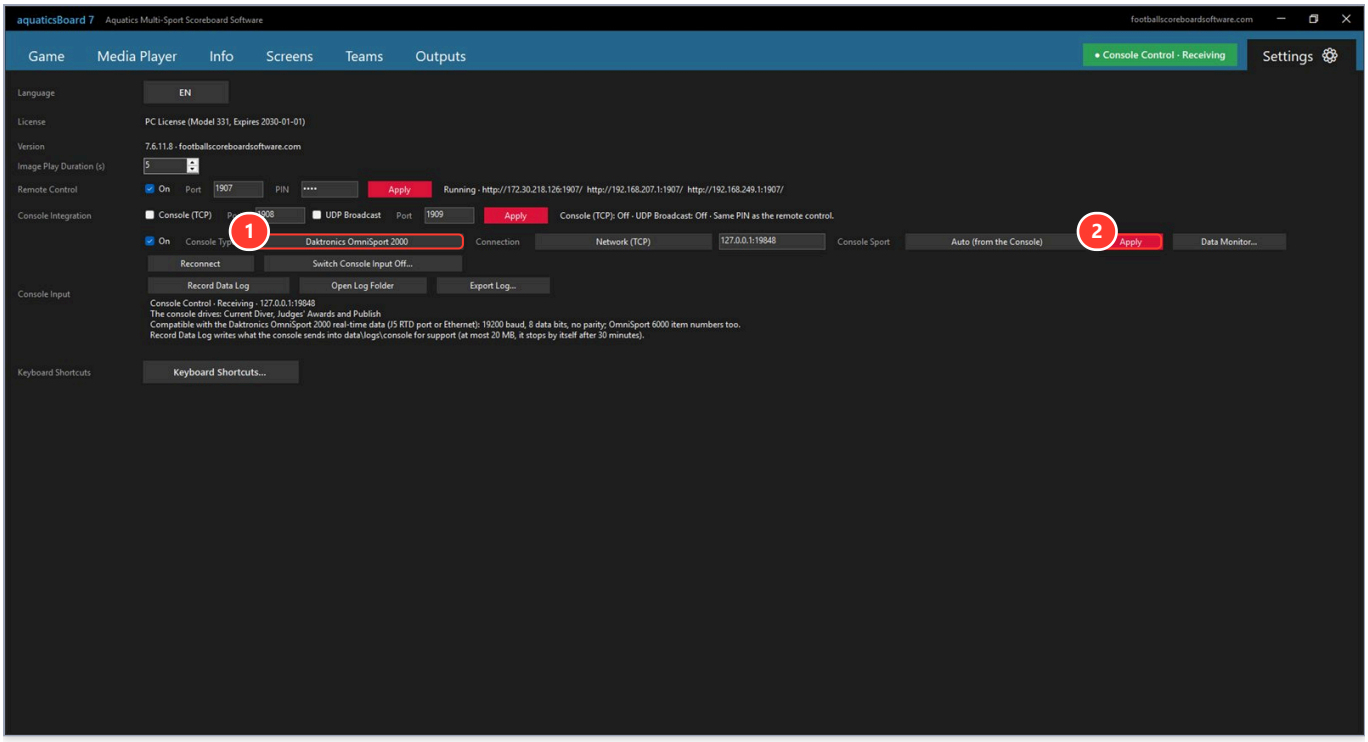


Figure 143. Settings – Daktronics OmniSport 2000 receiving (Diving, built-in simulator)

#	Control	What it does
1	**Console Type**	The console type (only the types of the aquaticsBoard 7 sports are listed).
2	**Apply**	Saves and (re)connects; another console type sets its documented line settings.

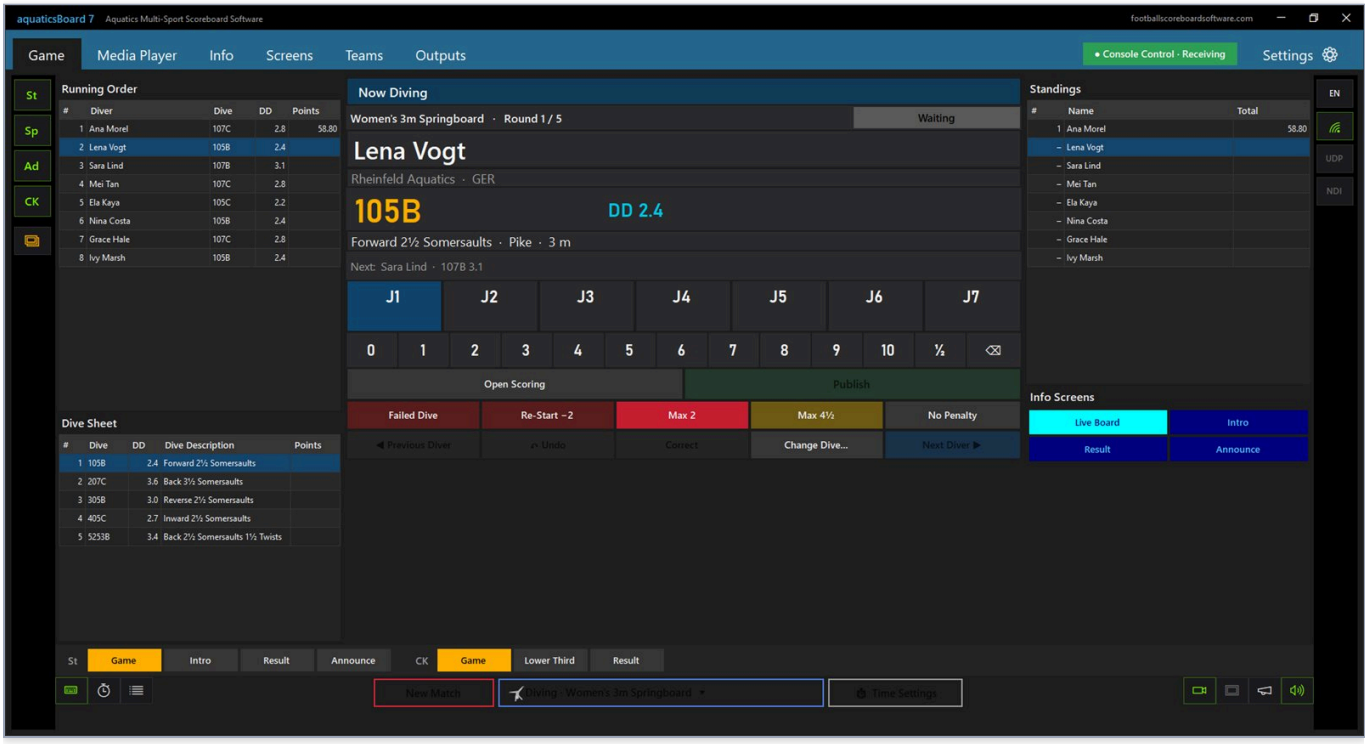


Figure 144. Diving under the control of the Daktronics OmniSport 2000

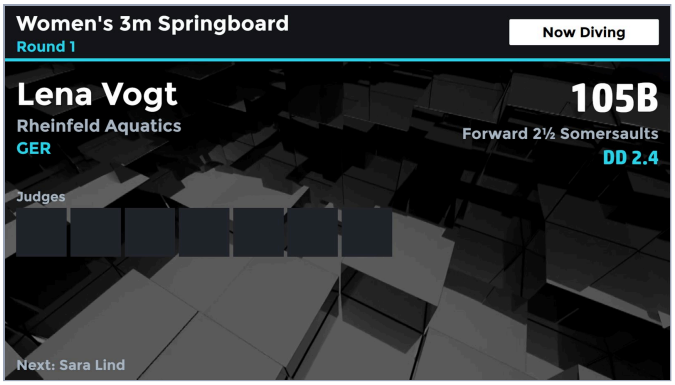


Figure 145. The St board follows the console

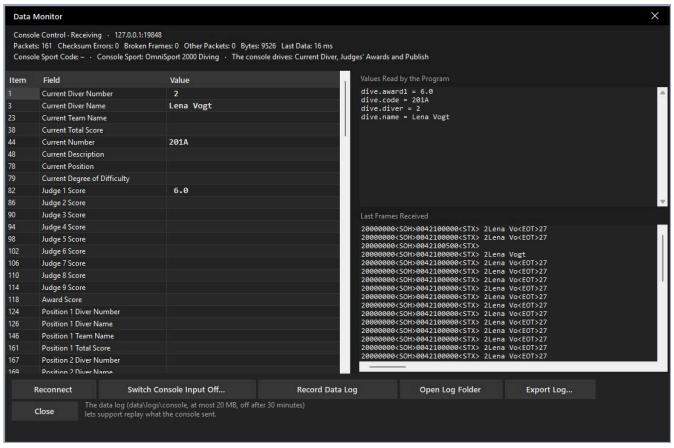


Figure 146. The data monitor with the console's fields

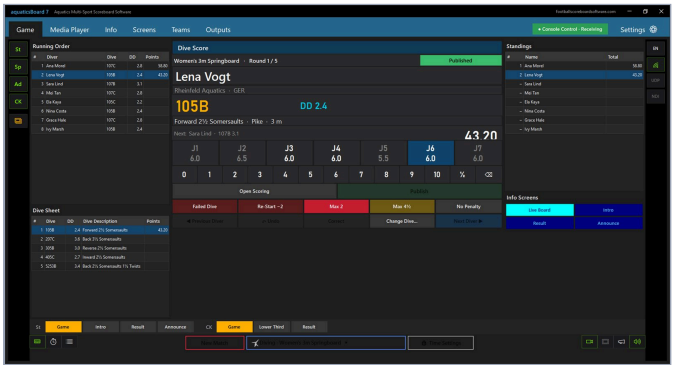


Figure 147. After the race / dives

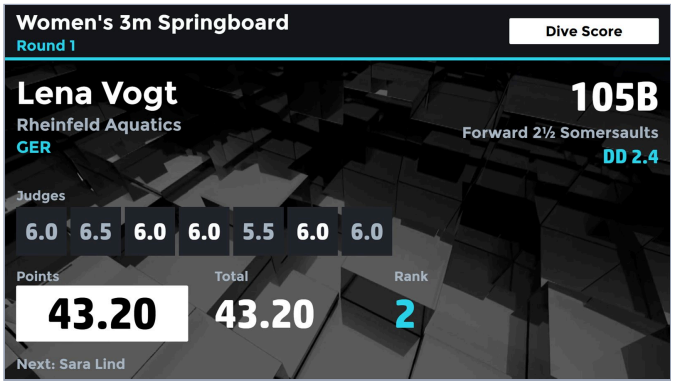


Figure 148. The St board with the results

Not Verified Yet

- The RTD control field of the OmniSport 2000 (004210 or 004010: both are read) and its packet rate.
- Whether the console fills "Official Results" in every mode.
- The diving award field (dive points) and the judges' fields with tenths; synchronised diving.
- Water polo timeouts: counted as timeouts left.
- Artistic swimming and track are not in the aquaticsBoard 7 sports: not read.

First Test on Site

1. Connect, open the data monitor: Packets rise, no checksum errors; the item table shows the running time, event, heat and lines.
2. Call a heat and start a race: aquaticsBoard 7 calls the heat and starts.
3. Touches: splits and final times appear in the desk; a DQ on the console marks the lane.
4. Official Results on the console: the heat is approved in aquaticsBoard 7.
5. Water polo / diving: run a few minutes and compare every value.

Compatible with Omega / Swiss Timing (ARES 21, Quantum)

Pools with an Omega / Swiss Timing swim timer (ARES 21, Quantum) send the "data handling" messages (OSM6) for result systems. aquaticsBoard 7 reads the start, the splits, the finishes with their rank, DSQ / DNS / DNF and the official end, and runs its own race clock from the start message.

> **Note** **Compatible with the Omega / Swiss Timing (ARES 21, Quantum).** aquaticsBoard 7 is not made or supported by the console's maker and shows no logos. The driver was written from public documents and tested with a simulator only: test it once with the console (see the steps below).

What You Need

- The timer's data output for result systems (RS-232 / RS-422 depending on the timer; an RS-422 to USB adapter for the Quantum) and a USB adapter on this PC.
- The serial settings: **9600 baud**. The ARES 21 sends 7E1, the Quantum 8N1: leave the program on **8N1**, it reads both.
- A start list in aquaticsBoard 7: the Lenex file of the meet (the timer sends no names).

Settings in aquaticsBoard 7

Console Type **Omega / Swiss Timing (ARES 21, Quantum)** · Serial Port (COM) · the COM port · **9600** · **8N1** · Console Sport Auto.

On the Console

- Switch the timer's data output (OSM6 / "data handling") on, as for a result system.
- Event and heat numbers of the timer = those of the start list.

What the Console Drives

Sport in aquaticsBoard 7	What the console drives
Swimming	Event and heat, the start (the console sends no running time: the program's race clock starts with the start message), splits, finals with rank, DSQ, DNS, DNF, the official end – the program approves the heat.

The console-driven values are locked for the panel, the hot keys, the remote and the API while the data arrive (see *Who Controls What*); data lost keeps the lock; only Console Input Off with Yes unlocks.

Pictures

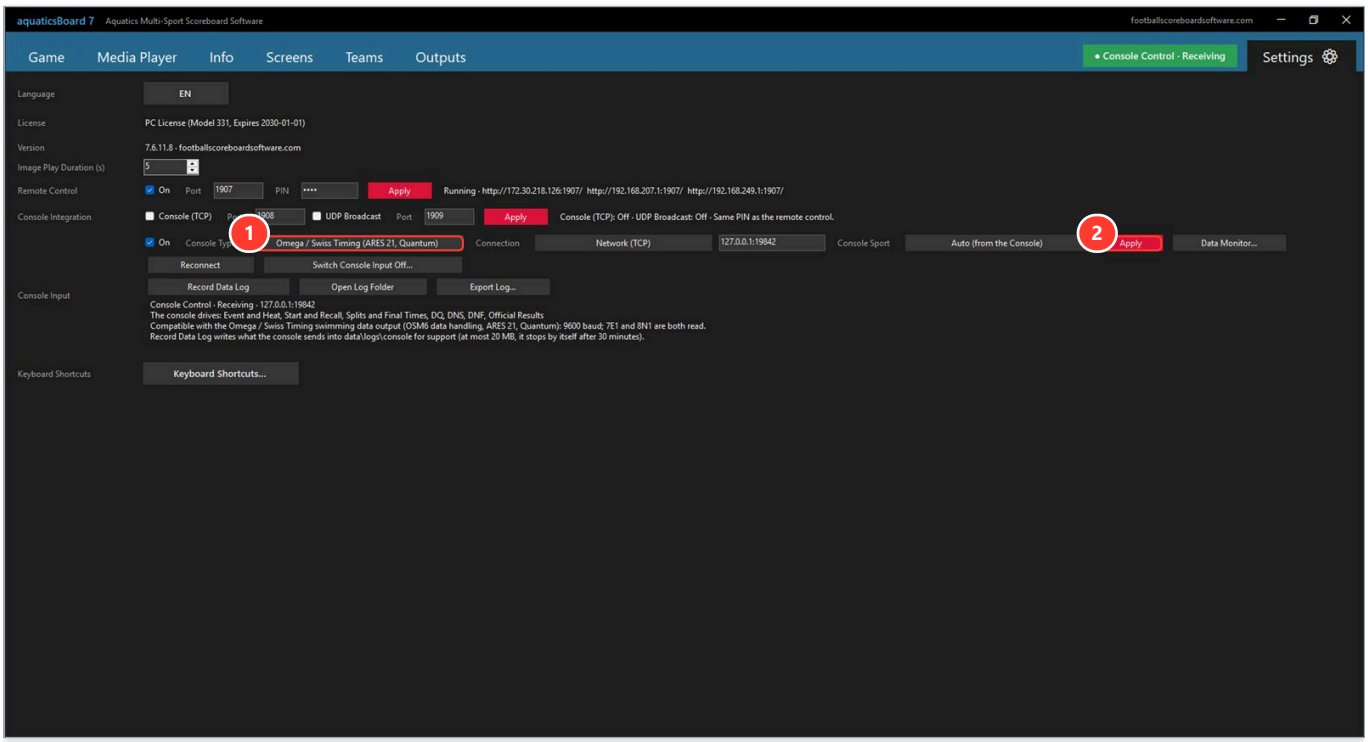


Figure 149. Settings – Omega / Swiss Timing (ARES 21, Quantum) receiving (Swimming, built-in simulator)

#	Control	What it does
1	**Console Type**	The console type (only the types of the aquaticsBoard 7 sports are listed).
2	**Apply**	Saves and (re)connects; another console type sets its documented line settings.

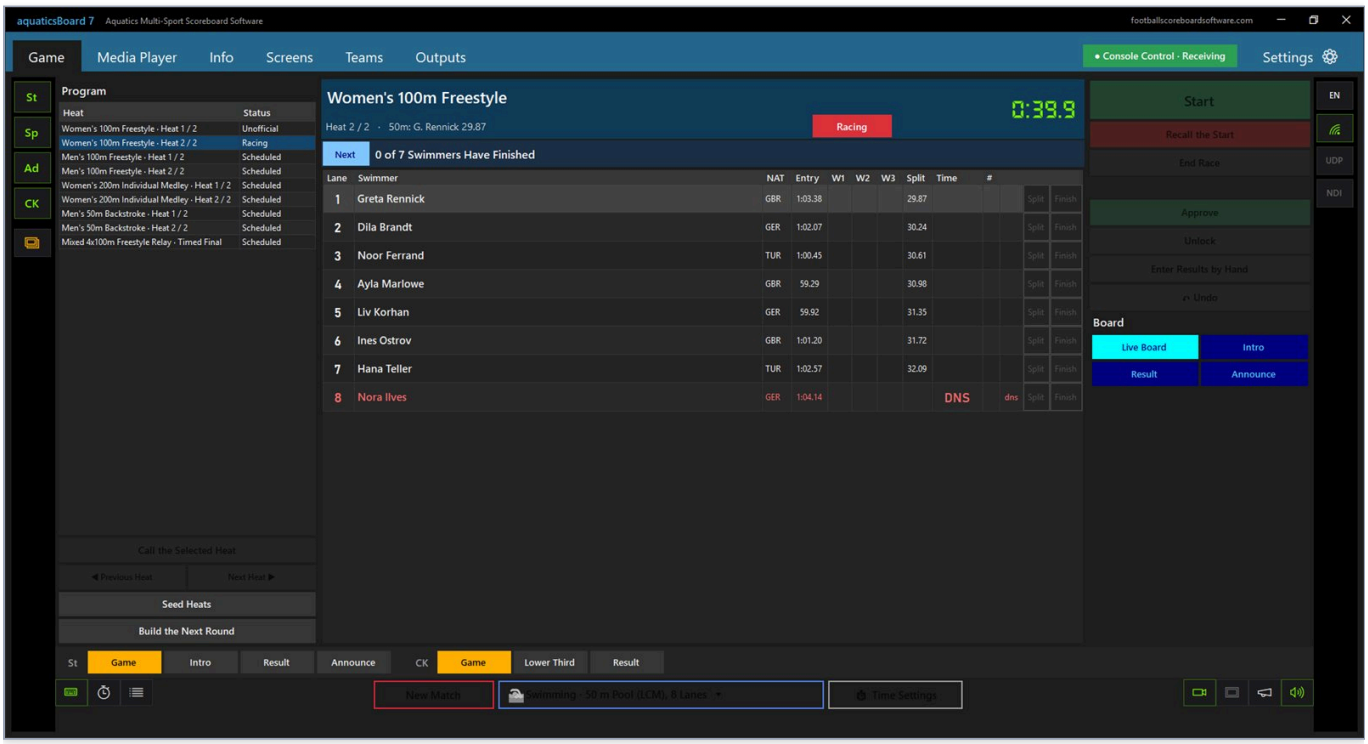


Figure 150. Swimming under the control of the Omega / Swiss Timing (ARES 21, Quantum)

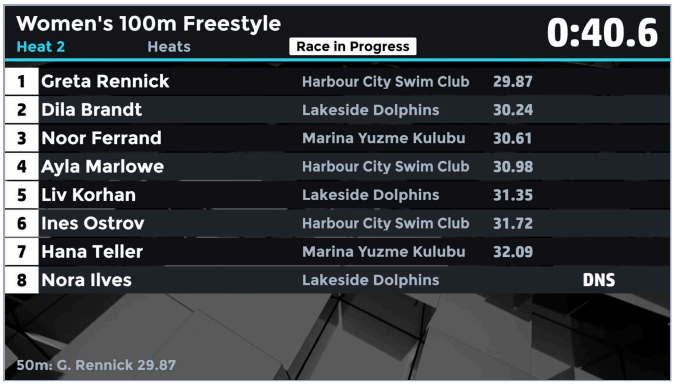


Figure 151. The St board follows the console

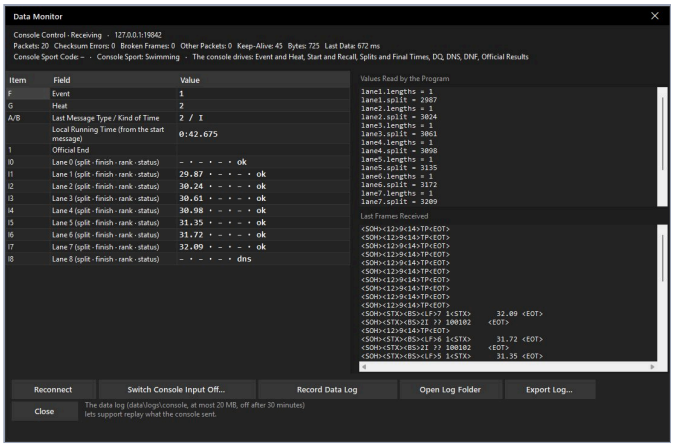


Figure 152. The data monitor with the console's fields

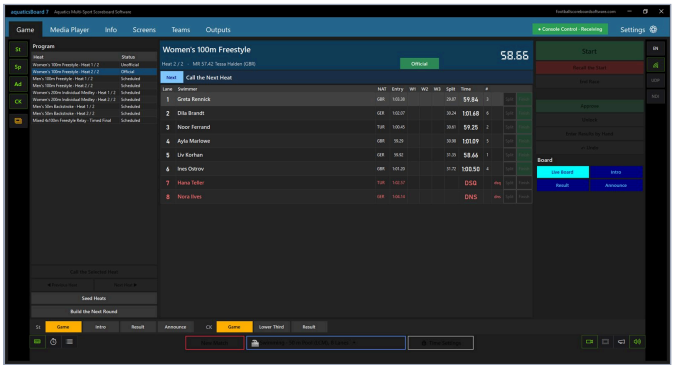


Figure 153. After the race / dives



Figure 154. The St board with the results

Not Verified Yet

- The protocol was written from its public description only (no Omega document): the lane order of the lane mask, message type 4, lanes above 9, the reaction-time format and the Quantum over TCP.
- The running time on the board comes from the program's clock started by the start message (the timer sends none).

First Test on Site

1. Open the data monitor: the last message type and kind change with every event of the timer.
2. Start a race: aquaticsBoard 7 starts at the same moment.
3. Touches: splits, finals and ranks match the timer; DSQ / DNS appear.
4. The official end on the timer approves the heat in aquaticsBoard 7.

Compatible with Kazo Vision Ultra Score (Data Out)

Kazo Vision Ultra Score sends its live data as UDP broadcasts on port 2800 ("Data Out"). aquaticsBoard 7 listens on this port and reads the sports it has.

> **Note** **Compatible with the Kazo Vision Ultra Score (Data Out).** aquaticsBoard 7 is not made or supported by the console's maker and shows no logos. The driver was written from public documents and tested with a simulator only: test it once with the console (see the steps below).

What You Need

- The Ultra Score PC and this PC in the same network (broadcasts do not pass routers).
- Allow UDP port 2800 in the Windows firewall for the program.

Settings in aquaticsBoard 7

Console Type **Kazo Vision Ultra Score (Data Out)** · Network (UDP) · port **2800** · Console Sport **Auto** (the message type picks the sport).

On the Console

- Switch **Data Out** on in Ultra Score.
- Swimming: the same event and heat numbers as the start list in aquaticsBoard 7. Diving: the same divers (names).

What the Console Drives

Sport in aquaticsBoard 7	What the console drives
Swimming	Event and heat, the start (the match time), splits (lap) and finals (last lap), DSQ / DNS / DNF. The heat result is not an approval: the Referee approves in the program.
Diving	The current diver (number → name from the console's start list, found by name in the running order), the judges' valid scores, the dive score publishes the dive.
Water Polo	Game clock and running state, period, score, shot clock, timeouts taken.

The console-driven values are locked for the panel, the hot keys, the remote and the API while the data arrive (see *Who Controls What*); data lost keeps the lock; only Console Input Off with Yes unlocks.

Pictures

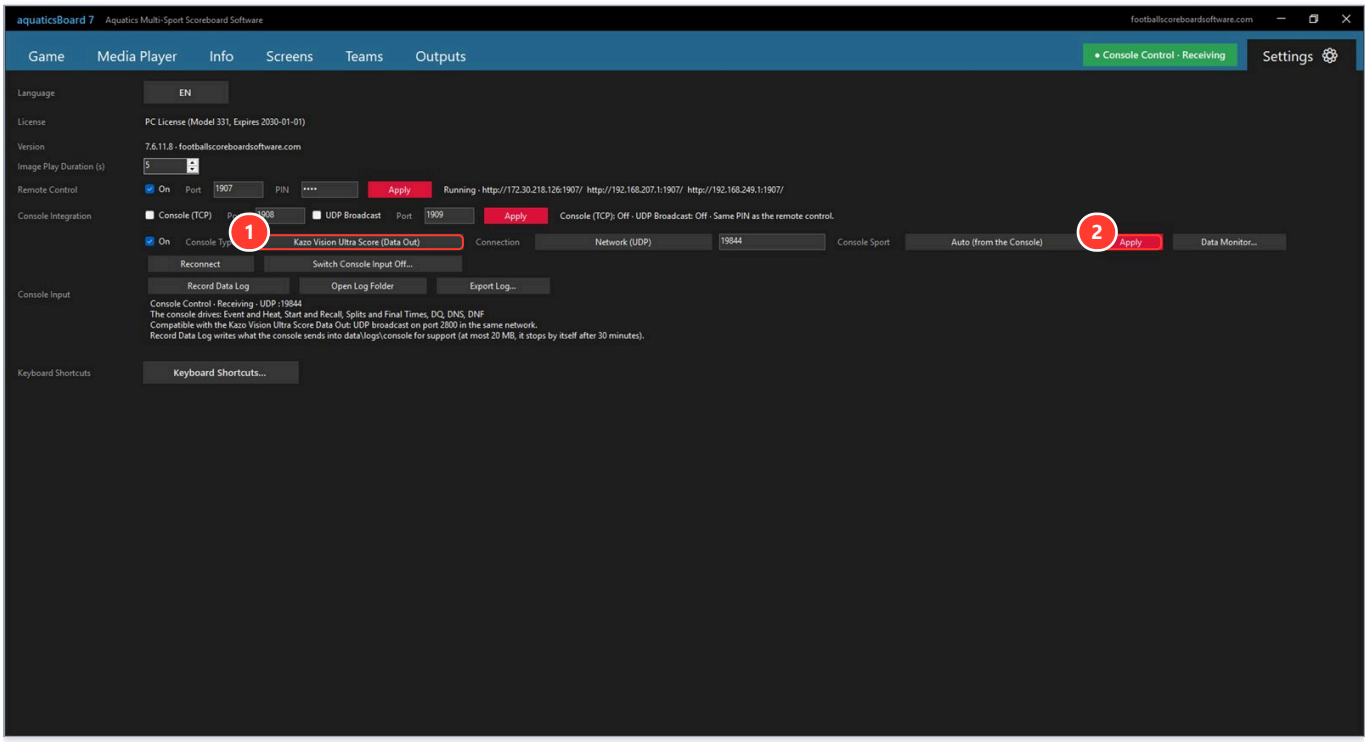


Figure 155. Settings – Kazo Vision Ultra Score (Data Out) receiving (Swimming, built-in simulator)

#	Control	What it does
1	**Console Type**	The console type (only the types of the aquaticsBoard 7 sports are listed).
2	**Apply**	Saves and (re)connects; another console type sets its documented line settings.

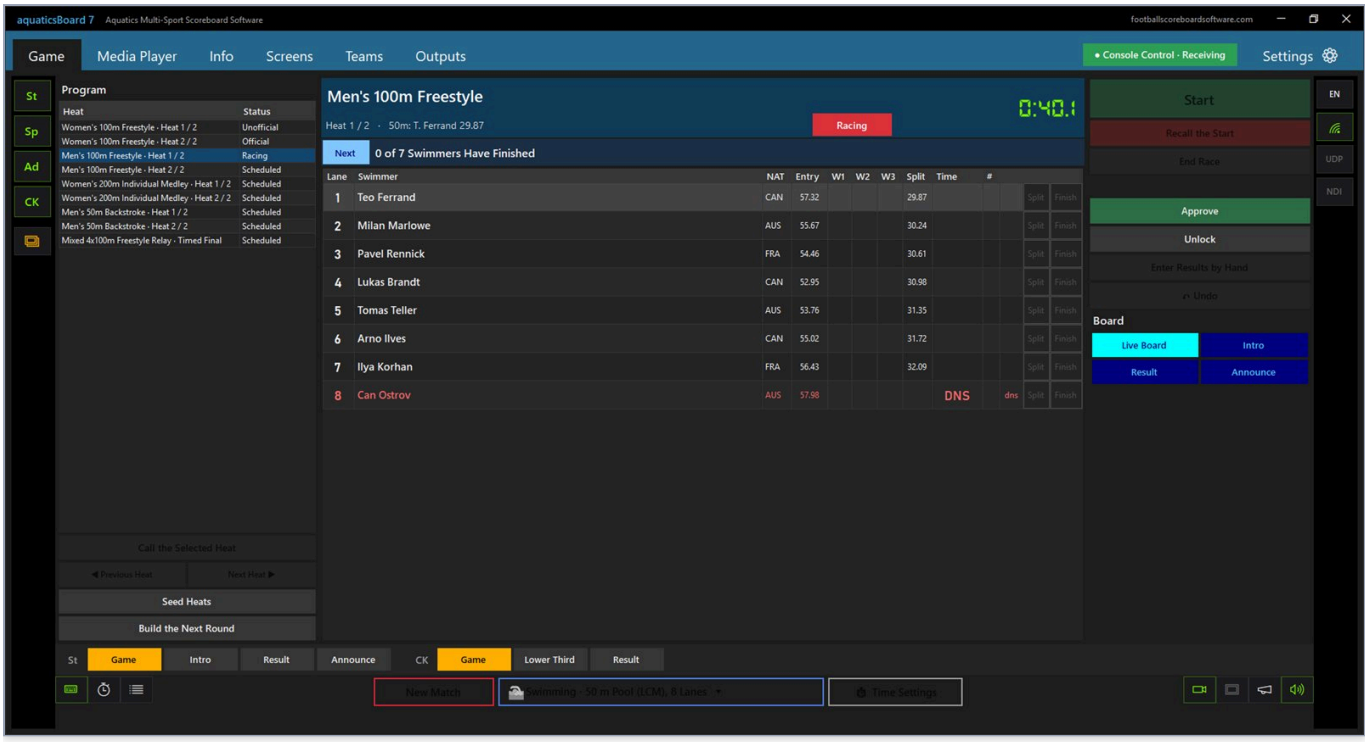


Figure 156. Swimming under the control of the Kazo Vision Ultra Score (Data Out)

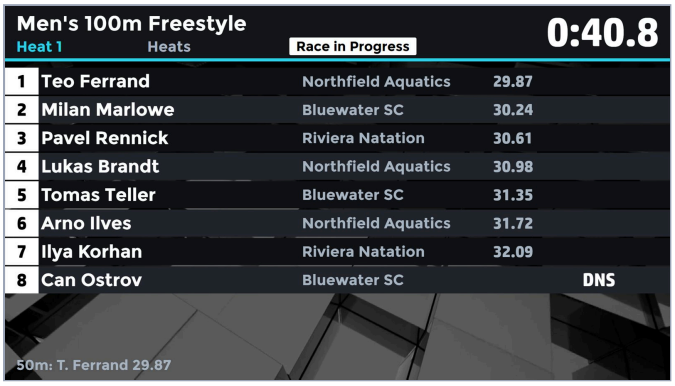


Figure 157. The St board follows the console

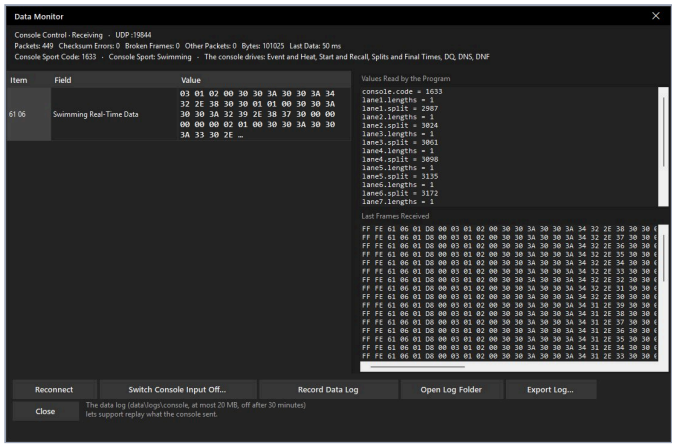


Figure 158. The data monitor with the console's fields

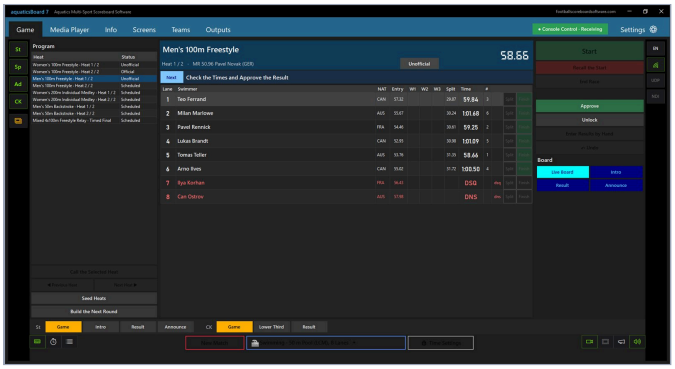


Figure 159. After the race / dives

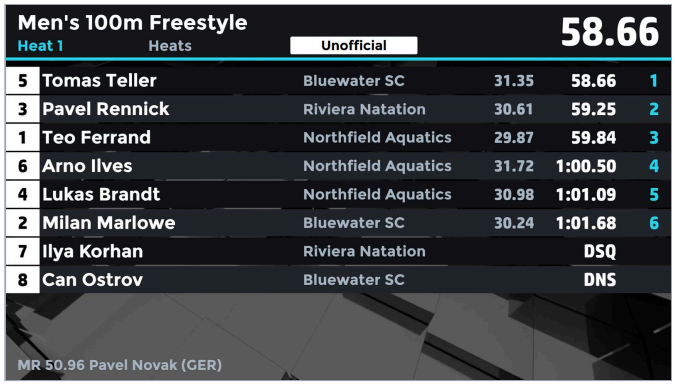


Figure 160. The St board with the results

Not Verified Yet

- "Timeout times" counted as timeouts taken; the break periods (even numbers) keep the period before.
- Swimming: the heat result message is not taken as the official end.
- Diving: the console's start list number → name; the judges' validity flags.

- Several Ultra Score systems in one network (system id) are not told apart.

First Test on Site

1. Open the data monitor: the general data message of the sport arrives (Packets rise).
2. Compare clock, score, period, fouls, timeouts, shot clock; swimming: start, splits and finals; diving: awards and publish.

Recording a Data Log for Support

When a console does not work as it should on site, a **data log** lets support see exactly what the console sent. It is off when aquaticsBoard 7 starts and never stays on by mistake.

1. Settings → Console Input (or the data monitor): click **Record Data Log**. The button turns red (*Stop Recording*) and the status line under it shows *Recording Log* with the time left (the data monitor too); the indicator in the tab strip keeps showing only the console's state.
2. Let the console run the situation that goes wrong (a few minutes are enough). Note what the console showed.
3. Click **Stop Recording** – or let it stop by itself after **30 minutes**; switching the Console Input off stops it too.
4. Click **Export Log…**: one zip file of the logs (choose where to save it, e.g. the desktop) – send it to support with your note. **Open Log Folder** shows the files.

- What is in it: every byte the console sent with its time (support can replay it into the program), and a readable list of what happened – connection, errors with the bytes concerned, unknown packets, every change of the values read, the lock state, the console type, port and baud rate, the program version.
- The log folder is *data\logs\console*. It never takes more than **20 MB** in all (at most 4 MB per file, 20 files): the oldest files are deleted first, also after a restart.
- No personal data are recorded – only the console's data.

The Data Log in aquaticsBoard 7

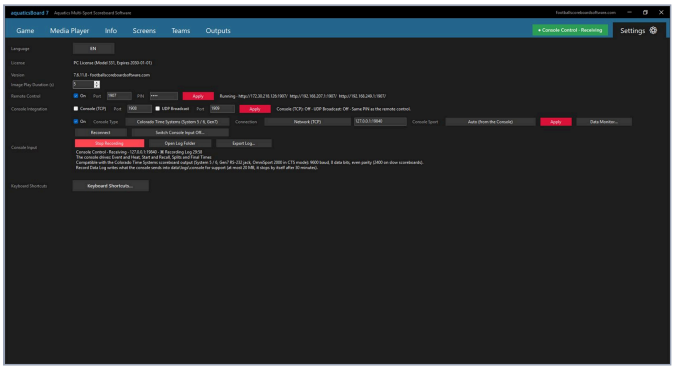


Figure 161. Record Data Log on: the status line counts down

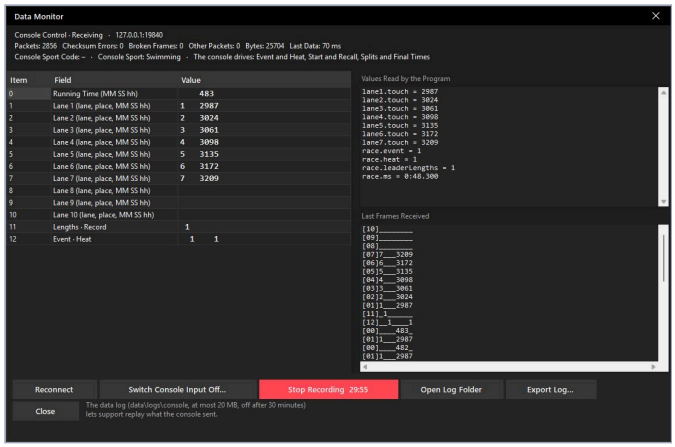


Figure 162. The data monitor while the log records

Other Consoles

These consoles are possible once a customer sends a data log (or a capture) of their console – their data format is not published: **Swiss Timing basketball consoles**, **Mobatime**, **Fair-Play**, **ALGE** timers, **Microgate**. Record a data log with the console connected as above (any console type) and send it to support.

19 Typical Workflows

1. Connect the second display and set it to *Extend* in the Windows display settings (`Win` + `P`), Scale 100 %.
2. Start aquaticsBoard 7, click the sport button in the bottom bar and choose the sport and discipline.
3. Open **Teams**: type the event, team names, short names, choose colours and logos, fill the team lists and click **Apply**.
4. Open **Outputs**: in the Standard (LED) row choose monitor 2, tick **Full Screen** and **Show** (for a sender card: Full Screen off and the LED's pixel area, see *Sending the Board to the LED Screen*).
5. Click the design icon on the output strip and pick the master design you like for St.
6. Optionally switch on the background video with the icon at the bottom right.
7. Go back to **Game** and run the match; use the St on-air row for Intro before the start and Result at the end.

1. On **Outputs**, set St to the LED wall monitor with **Full Screen** (or Left / Top / Width / Height for an LED controller with an unusual resolution).
2. Tick **Show** and **NDI** for Chroma Key (Video). If you do not need to see it, untick Full Screen and give it a small window on the operator monitor.
3. In vMix add an NDI input *<PC name> (<product> CK)* and put it as an overlay; the background is already transparent.
4. On the **Info** page tick **St** and **CK**, set Seconds on Air to 8–10.
5. During play, show goals, cards and substitutions from the Info page: the LED wall shows the full-screen graphic, the broadcast the lower graphic, and both return to the game screen by themselves.

1. Right-click **Sp** on the output strip: the **Sp / Ad Media** dialog opens at the Sponsor Strip tab. Click **Add Pictures…** and choose the sponsor logos (PNG with a transparent background looks best).
2. Set Mode to **Scroll Images**, Direction Left, Speed 4–6. Rename the files in **Open Folder** (01_, 02_ …) to change their order, then click **Reload**.
3. Open the **Ad Layout** tab: keep the scoreboard Left (Size 0 = Auto), tick **Visible** for Banner 1 (Top, 12 %) and Banner 2 (Bottom, 12 %).
4. On **Banner 1** choose **Scroll Text** and type one message per line (next home game, ticket office, social media). Pick Colour 2 in the club colour.
5. On **Main Area (Ad)** keep **Playlist** and add the sponsor videos; set Seconds per Picture for the still adverts.
6. Tick **Show the Ad Board**, check the result live and close the dialog. At half-time type a raffle message into Scrolling Text on the Info page and click Apply.

1. Connect the sender card, press `Win` + `P` → **Extend**, and set the card's monitor to 1920 × 1080, Scale 100 %, in the Windows display settings.
2. Let the LED supplier map the screen in the vendor software from the top left corner (0, 0) of the card's input.
3. On **Outputs**, Standard (LED): choose the sender card's monitor, untick **Full Screen**, type Left 0, Top 0, Width 384, Height 192 and tick **Show**.
4. Check the LED: the board fills it exactly. Close aquaticsBoard 7.
5. On match day just start aquaticsBoard 7: the board opens on the LED by itself.

1. Before the match open **Media Player**, click **Add Clip** and choose the video and the two pictures; drag the rows into order.
2. Switch **Return to the Scoreboard** on (green frame), set the sound on if the video has music, and check **Image Play Duration** on the Settings page.

3. At half-time select the first row and click **Start**: the clips play one after the other on the board.
4. At the end of the playlist the scoreboard comes back by itself (or click **Finish** / the **Game** tab earlier).

1. Open **Settings** and note the address and the PIN of the Remote Control row (set your own PIN and click Apply if you like).
2. Connect the phone to the same Wi-Fi and open the address in its browser.
3. Enter the PIN and press ✓.
4. Use the team buttons for scores, fouls and timeouts and the Match buttons for the clock; mistakes are fixed with the Corrections buttons or Undo.
5. Keep the PC operator for info graphics and screens; both can work at the same time.

1. Before the day, open **Teams** and type the event name and the venue.
2. Type the first match's teams with their team lists (number, name, Show) and click **Apply**.
3. For each later match, change names, short names, colours, logos and team lists and click **Apply**, then click **New Match** (the team setup is kept, the score is reset).
4. Untick **Show** for injured or absent players instead of deleting them.
5. Before each match, show the Intro screen and the team lists (Info page → Team Lists, with **Slide** for a player-by-player presentation).

1. Type only the team names and click **Apply** on the Teams page.
2. Score on the Game page as usual (team scores without players).
3. For a goal or a card graphic, open the Info page, choose the team and type just the number (or number and name) into the player field.
4. Click **Show**. A number with a name is added to the team list, so it can be picked from ▾ next time.

1. Start the PC and aquaticsBoard 7 again.
2. Answer **Yes** to *"The program did not close normally. Restore the last match?"*.
3. Check score, fouls and penalties on the Game page; the clock is stopped at the time of the last recorded action.
4. Ask the table officials for the official time and correct it with **Set Clock**.
5. Check that the boards are open (St / Sp / Ad / CK open again by themselves at their places) and start the clock with the referee's signal.

1. Click the design icon on the output strip, then **Edit** on the Arena card.
2. Click **Save a Copy** and give the design the club name.
3. Open the **Theme** tab and change the colour tokens (accent, panel, text) and the fonts – every screen of the design follows.
4. Check the special moments with **Preview Data** and the shapes of your screens with **Preview Size**.
5. Click **Save** (`Ctrl` + `S`), close the editor and choose the new design (★) for St, Sp and Ad on the Outputs page or in the gallery.

20 Swimming

Swimming runs on the race desk: one window with the program on the left, the called heat with its lanes in the middle and the race actions and board screens on the right. aquaticsBoard 7 keeps a whole meet — sessions, events, heats, lanes, entries, results and records — and shows the called heat on every output.

Rule	As implemented
Pool	the preset: 50 m (LCM) or 25 m (SCM) with 6, 8 or 10 lanes (lanes 0–9)
Watches	three per lane; the official time follows hand timing (2 equal = that time, 3 different = the middle one, 2 = the average); a typed official time replaces them
Times	cut (not rounded) to hundredths
Splits	every 50 m; the press after the last split is the finish
End of the race	by itself when every swimmer has a time, or End Race
Places	live during the race, final after the approval; the boards sort the lanes by place after the race
Approval	only when every lane has a time or is DNS / DNF; locked until Unlock
Team points	9-7-6-5-4-3-2-1, relays double
Records	the record line of the event (e.g. MR); a new record is marked at the approval

Choosing the Pool

Discipline (Swimming)	What it is
50 m Pool (LCM), 8 Lanes	Long course, lanes 1–8 (the default).
25 m Pool (SCM), 8 Lanes	Short course, lanes 1–8.
50 m Pool (LCM), 10 Lanes 0-9	Long course with ten lanes numbered 0 to 9.
25 m Pool (SCM), 6 Lanes	Short course, lanes 1–6. A click on a discipline switches at once; the meet is saved first.

The Race Desk

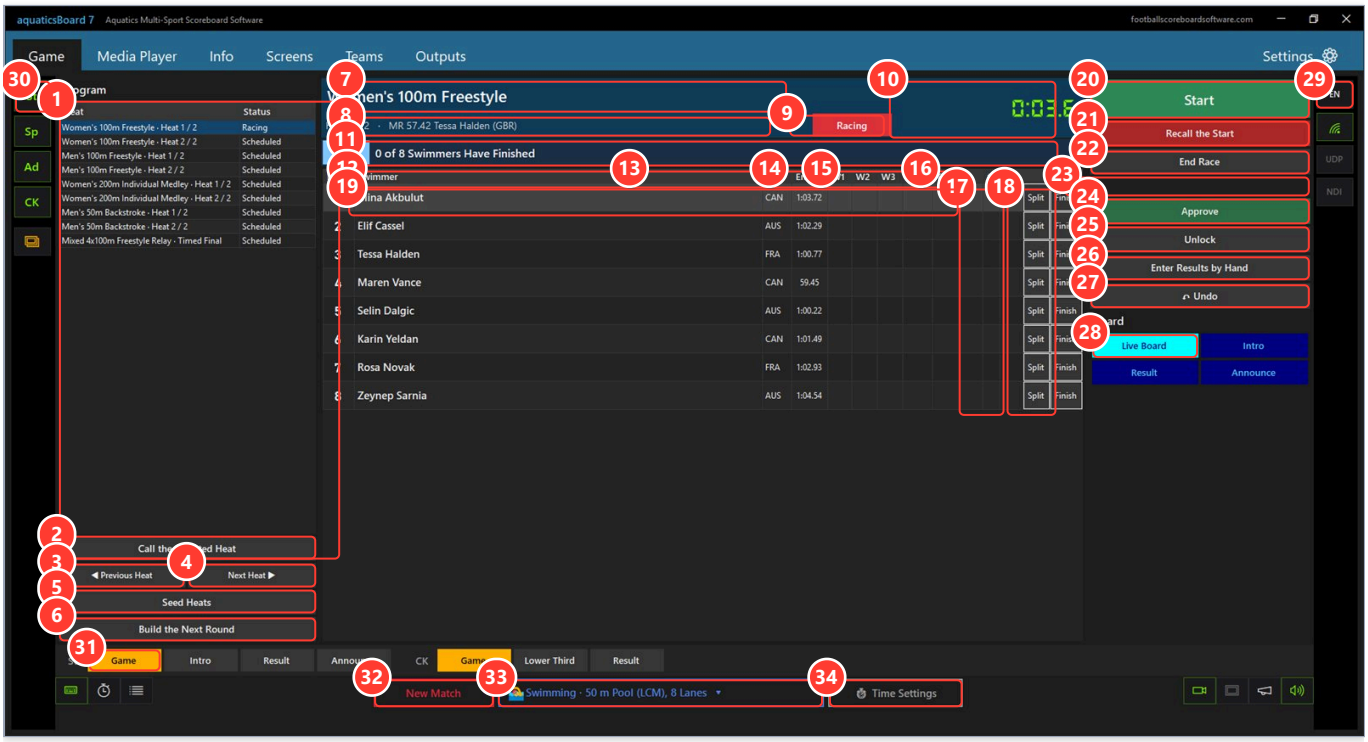


Figure 163. The swimming race desk (Game page) during the first heat of the program

#	Control	What it does
1	**Program**	Every heat of every event in order, with its status (Scheduled, On the Blocks, Racing, Unofficial, Official). The heat on the blocks is lit blue. A click only **selects** a row; it does not call it.
2	**Call the Selected Heat**	Calls the heat selected in the program: it becomes the current heat, goes *On the Blocks* and appears on every board. Refused while another race is running.
3	**◀ Previous Heat**	Calls the heat before the current one (the last heat of the previous event at the start of an event).
4	**Next Heat ▶**	Calls the next heat, then the first heat of the next event. Shows *End of the program* after the last heat.
5	**Seed Heats**	Seeds the heats of the current event again from its entries (by entry time, circle seeding of the fastest heats; semi-finals and finals by rank). Refused once a heat of the event has started.
6	**Build the Next Round**	After the heats (or semi-finals) are approved: puts the qualified swimmers (Q) into the lanes of the next round. Refused when the event has no next round.
7	**Event**	The name of the called event, e.g. *Women's 100m Freestyle*.
8	**Heat and record line**	The heat (*Heat 1 / 2*, *Final*) and the record to beat (e.g. **MR** meet record, time and holder).
9	**Heat status**	Scheduled · On the Blocks · **Racing** (red) · Unofficial · **Official** (green).
10	**Race clock**	0:00.0 when the heat is on the blocks, the running race time (green) during the race, the winning time afterwards.
11	**Next line**	The step the desk expects: *Start the Race when the Swimmers Are Still*, *3 of 8 Swimmers Have Finished*, *Lane 4: Enter the Time, or Mark It DNS or DNF*, *Check the Times and Approve the Result*. The same text is shown at the bottom of the St board.

#	Control	What it does
12	**Lane · Swimmer · NAT · Entry**	Lane, swimmer (relay: the team), nation and entry time (*NT* = no time). A disqualified or absent lane is written in red.
13	**W1 · W2 · W3**	The final times of the up to three watches of the lane. The official time follows hand timing: two equal watches = that time, three different = the middle one, two = their average.
14	**Split**	The last split of the lane during the race (every 50 m in the presets).
15	**Time · #**	The official time (or DSQ / DNS / DNF) and the place: live during the race, final after the approval.
16	**Status · ⚠**	The lane status. After the race an amber ⚠ marks a lane to check: watches 0.30 s or more apart, only one or two watches, or a time more than 25 % away from the entry time. Hover the status or the swimmer for the reasons.
17	**Split (per lane)**	Records the next split of the lane at the race clock (watch 1). When all splits of the distance are in, the next press counts as the finish. A press within 4 seconds of the last one is ignored.
18	**Finish (per lane)**	Records the touch at the race clock. The button turns **green** when the lane's final time is in and stays dark while it is to come; an empty lane has no button colour. When every swimmer has touched the race ends by itself (*Unofficial*).
19	**Lane row (right-click)**	A left click selects the lane for *Enter Results by Hand*; a right click opens the lane menu (see *The Lane Menu*).
20	**Start**	Starts the race clock of the called heat (only when it is On the Blocks and at least one swimmer can swim). Disabled while a race runs.
21	**Recall the Start**	False start recalled: the heat goes back On the Blocks, the clock and every split and touch are dropped. DNS and a false-start disqualification stay.
22	**End Race**	Ends the running race by hand (the heat becomes *Unofficial*). On a heat On the Blocks that was never started it closes the heat for times entered by hand (paper timing).
23	**Warning line**	Empty while all is well. When lanes need a check an amber ⚠ **Check Lanes 2, 5** names them; its tool tip lists every reason. It stays until the heat is approved.
24	**Approve**	The referee's approval: places, points and record marks are written, the heat becomes *Official* and is locked. Refused while a lane has no time and is not marked DNS or DNF.
25	**Unlock**	Takes the approval back (Official → Unofficial) so a time or a status can be corrected; approve again afterwards.
26	**Enter Results by Hand**	Opens *Official Time* for the selected lane (lane 1 when no row is selected). On a heat that never started the desk then asks whether to close the heat for hand timing (see the dialogs below).
27	**Undo**	Takes back the last action (a press, a status, a call …). The race clock itself is never turned back.
28	**Board: Live Board · Intro · Result · Announce**	Puts the St board on the race (Live Board), the intro, the event result or the announcement. The screen on air is lit cyan.
29	**Tool strip**	Language, remote control, UDP and NDI (see *Tabs and Side Strips*).
30	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.

#	Control	What it does
31	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
32	**New Match**	Starts the sport again after a confirmation. The competition (heats, results) is saved first and loaded again, so finished results are kept.
33	**Sport · discipline** ▾	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
34	**Time Settings**	Opens the Time Settings window. Swimming has no clock lengths to set: the window only says *This Discipline Has No Time Settings* (see below).

> **Note** When an action is refused, the reason appears in red under the bottom row (e.g. *The heat is approved: unlock it first.*). Nothing is changed in that case.

The Lane Menu

Right-click a lane row to open its menu. It works on that lane only, at any time before the approval (after the approval: Unlock first).

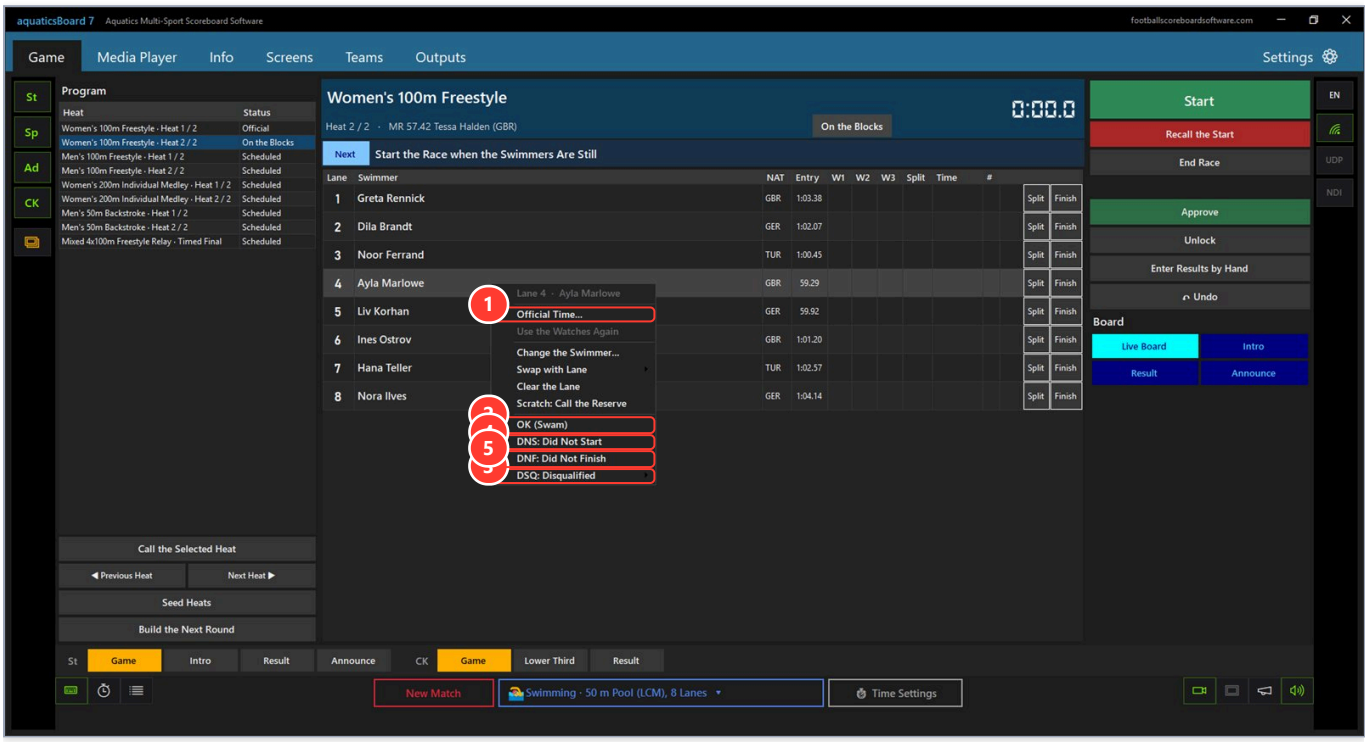


Figure 164. The lane menu (right click on lane 4) with the heat On the Blocks

#	Control	What it does
1	**Official Time...**	Opens *Official Time* for this lane: type the time (m:ss.hh, e.g. `1:02.47`). A typed official time replaces the watches; an empty answer leaves the lane unchanged.
2	**OK (Swam)**	Puts the lane back to normal (removes DQ, DNS or DNF).
3	**DSQ: Disqualified**	Disqualifies the swimmer: the time column shows DSQ, the lane is written in red and gets no place. Its presses are kept.

#	Control	What it does
4	**DNS: Did Not Start**	Did not start: the lane cannot be timed (Split and Finish are refused). Mark absent swimmers before the start so the race can end by itself.
5	**DNF: Did Not Finish**	Did not finish: the lane needs no time for the approval and gets no place.

Lane Time and Hand Timing Dialogs



Figure 165. Official Time – opened by Enter Results by Hand, a time typed

#	Control	What it does
1	**Official time of the lane (m:ss.hh)**	Type the time as `m:ss.hh` (e.g. `1:02.47`) or `ss.hh` for times under a minute. It becomes the official time of the lane and replaces the watches.
2	**OK**	Sends the time. Refused on a heat that is approved (Unlock first) or on an empty lane.
3	**Cancel**	Closes without a change.

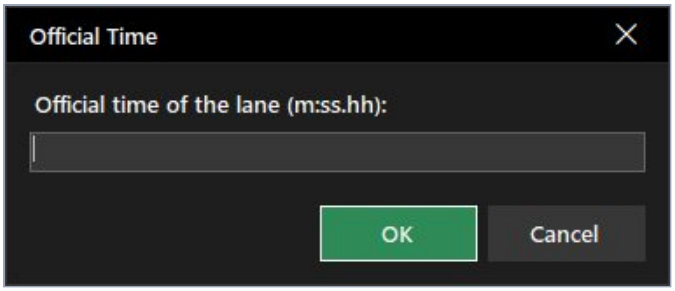


Figure 166. Official Time – opened from the lane menu (Official Time…): the same dialog, empty

A time is accepted only after the race has started. When you enter a time on a heat that is still On the Blocks (paper timing, no Start pressed), the desk asks:

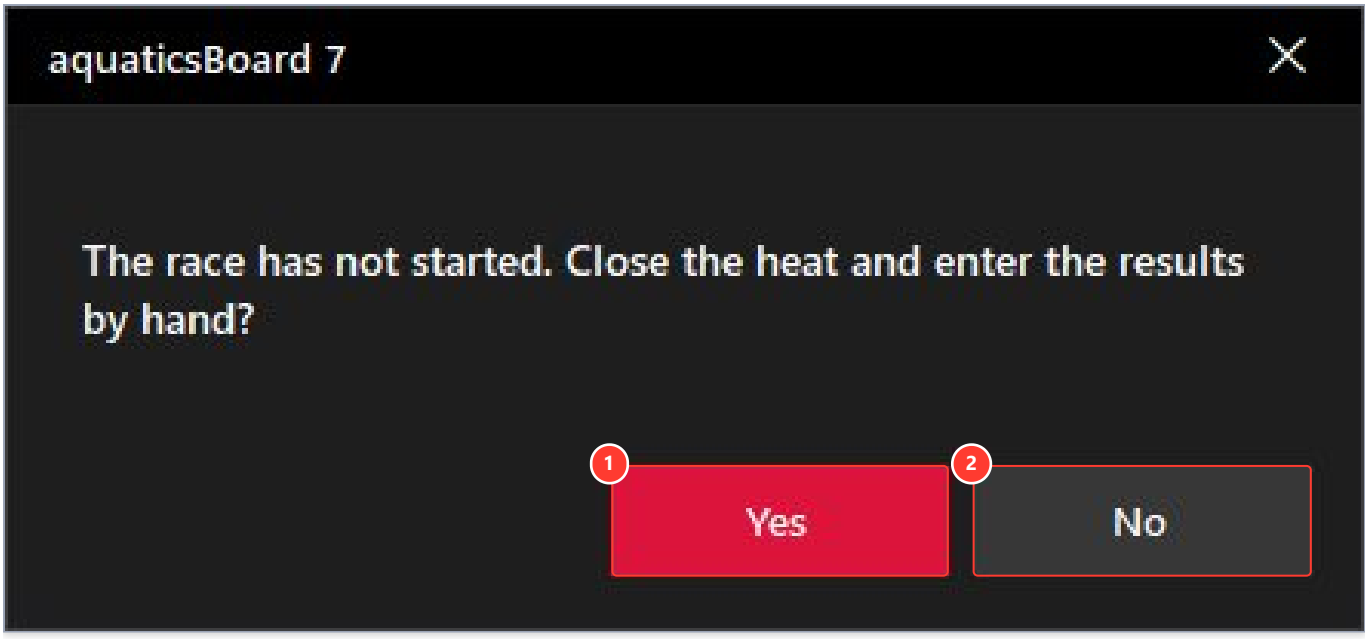


Figure 167. Closing a heat that never started for hand timing

#	Control	What it does
1	Yes	Closes the heat (the same as End Race on a heat On the Blocks) and stores the time you typed. Enter the other lanes the same way.
2	No	Nothing is changed; the heat stays On the Blocks so you can still start it.

The Life of a Heat

Status (desk and remote)	St board	How it gets there	What you can do
Scheduled	Scheduled	seeded, not yet called	Call the Selected Heat, Next Heat ▶
On the Blocks	On the Blocks	the heat is called	Start; mark DNS; End Race to close it for paper times
Racing	Race in Progress	Start	Split, Finish, DQ / DNF, Recall the Start, End Race
Unofficial	Unofficial	every swimmer touched, or End Race	Official Time..., DQ / DNS / DNF, Approve
Official	Official	Approve	Unlock (to correct), Next Heat ▶

> **Tip** The **Next** line always names the step that is due. Read it when you are not sure what the desk expects.

Timing

The race clock starts with **Start**. Every **Split** and **Finish** press — on the desk or on the remote — takes the elapsed race time as watch 1 of that lane. The official time is the hand-timing result of the watches, unless you typed an official time.

- Watches 2 and 3 can be sent by another program through the HTTP interface (command *lane.watch*, see *Data Exchange*); the desk and the remote record watch 1.
- A press less than 4 seconds after the previous one of the same lane is ignored (a slip of the finger).

- After the race has ended a Finish press is refused (*No race is running: give the time*): use the lane menu → **Official Time...** instead.
- A lane marked DNS cannot be timed; a DQ or DNF lane keeps its presses but gets no place.

> **Note** The meet (events, entries, heats, records) belongs to the competition stored with the sport and is saved with it.

Officials' Phones and PINs

The officials of the meet (referee, starter, timekeepers of every lane, stroke and turn judges ...) can work on their own phones: **Phones and PINs...** on the Teams page opens the list of seats. Each seat has its own random four-digit PIN (never the operator PIN of the remote control) and its own QR code. A phone opens the address of the card (or scans the code), signs in with the seat PIN and sees only what its seat may do.

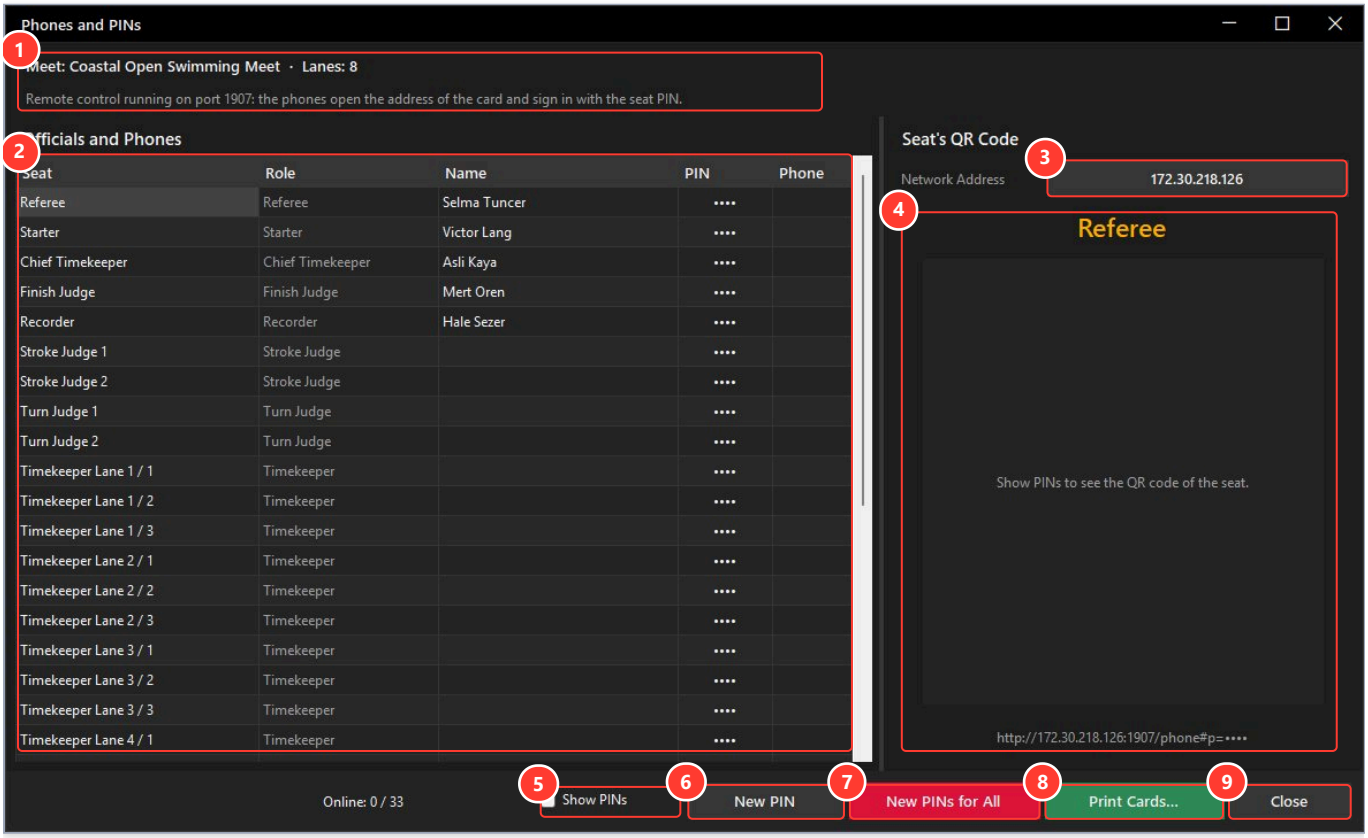


Figure 168. Phones and PINs (swimming: officials and lanes)

#	Control	What it does
1	**Competition and server**	The meet and the number of lanes, and whether the remote control runs (the phones need it: Settings → Remote Control).
2	**Seats**	**Seat**, **Role**, **Name**, the **PIN** (•••• until Show PINs is ticked) and **Phone** (a dot when the phone of the seat is online). Select a seat to see its QR code on the right.
3	**Network Address**	The address of the PC that the phones use (one entry per network adapter); the QR code and the cards use it.
4	**Seat's QR Code**	The code and the address of the selected seat, shown only while **Show PINs** is ticked.
5	**Show PINs**	Shows the PINs and the QR code. Keep it off while others can see the screen.
6	**New PIN**	Gives the selected seat a new PIN after a question; its phone must sign in again.

#	Control	What it does
7	**New PINs for All**	Gives every seat a new PIN after a question; all phones must sign in again.
8	**Print Cards…**	Opens one card per seat (seat, address, PIN and QR code) in the browser for printing. The cards are confidential: each holds the PIN of its seat.
9	**Close**	Closes the window; the PINs stay.

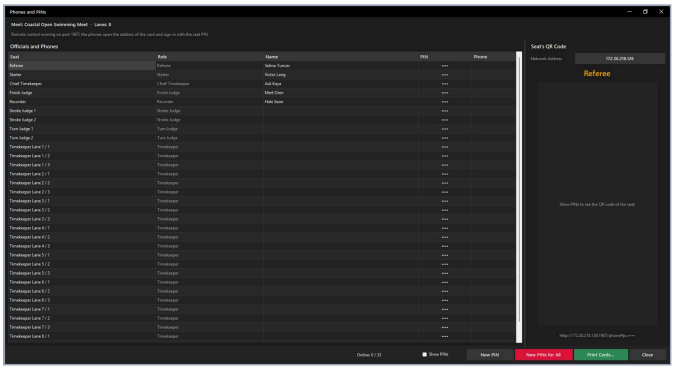


Figure 169. The same window maximised: all seats at a glance

Meet Data, Info and Screens Pages

For swimming the Teams page holds the meet instead of two team lists (picture and every field: *Teams and Players → Swimming and Diving: the Competition Page*):

- **Event Name**, **Event Subtitle**, **Venue** – the meet, a second line (session, date) and the pool, shown on the Intro screen and the CK graphics.
- A summary line: the meet, the called event and the number of lanes (e.g. *Lanes: 8*). It follows at once when another event is called on the desk or from the remote.
- **Save Competition** – saves the texts and the competition (entries, heats, results) at once. The competition is also saved by itself when you switch the sport, start a new match or close the program.

The Info page of swimming has only the rows the swimming boards can show: Show On, Announce, Scrolling Text (Sp) and the Info Screens **Intro**, **Result**, **Announce** (see *The Info Page of Each Sport*). The Screens page offers Game, Intro, Result, Announce for St and Game, Lower Third, Result for CK (see *The Screens Page of Each Sport*).

Lenex and the Meet Managers

Most swimming meets are run with a meet manager: **SPLASH Meet Manager** (Lenex files) or **Hy-Tek Meet Manager** (Active Hy-Tek). The meet manager holds the entries, seeds the heats and prints the results; aquaticsBoard 7 shows the heats on the boards, times them and approves them. The two programs exchange files: the start lists come in, and after every approved heat the results go back to the meet manager.

File	Direction	What it holds	Where in aquaticsBoard 7
Lenex *.lxf* / *.lef* (SPLASH Meet Manager, most federations)	in and out	the whole meet: sessions, events, heats, clubs, swimmers, relays, entries, results, records	Teams page → **Import…**; **Results…** → **Export Lenex…**
Hy-Tek *.hy3*, SDIF *.cl2* / *.sd3*, MM's export *.zip*	in	the meet with Meet Manager's heats and lanes (and results already swum)	Teams page → **Import…**
Hy-Tek scoreboard start lists *.scb* (E001.scb …)	in	the heats of one event per file, names and teams	Teams page → **Import…** (several files at once)

File	Direction	What it holds	Where in aquaticsBoard 7
Hy-Tek GNET heat file *.ge2*	out	the results of one approved heat for MM's timing interface	Teams page → **Heat Files…**
SPLASH heat file *SessionA-EventB-HeatC.txt*	out	the results of one approved heat for SPLASH's generic timing import	Teams page → **Heat Files…**

> **Note** aquaticsBoard 7 keeps the meet manager's own numbers (event, heat, club and age group ids, Hy-Tek event numbers such as 12A). The results it sends back therefore land in the right events and heats of the meet manager, also after heats were seeded again.

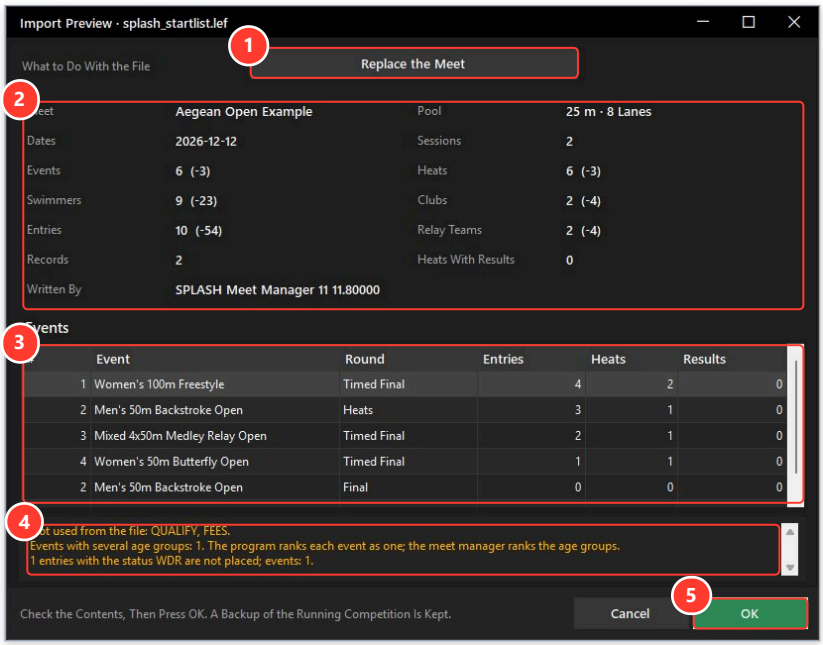


Figure 170. The import preview of a SPLASH start list (nothing changes before OK)

#	Control	What it does
1	What to Do With the File	**Replace the Meet** (a Lenex or Hy-Tek meet) or **Records Only (Keep the Meet)** (Lenex). For .scb start lists: **Take the Start Lists (Events with Results Stay)**.
2	Summary	Meet, pool (taken from the file: course and lanes), dates and how many sessions, events, heats, swimmers, clubs, entries, relay teams, records and heats with results the file brings; in brackets the difference to the meet you have now. **Written By** names the program that wrote the file.
3	Events	Every event with its round, entries, heats and results. A heat-and-final event comes twice (Heats and Final), like in the meet manager.
4	Notes	What aquaticsBoard 7 did with the file: parts it does not use (fees, qualifying times …), withdrawn entries (status WDR / SICK / RJC / DNS) that are not placed, events with several age groups (the meet manager ranks its age groups; aquaticsBoard 7 ranks each event as one), unknown strokes. Every note is also written to the log.
5	OK	Takes the file into the competition editor; **Apply** starts it on the desk (a backup of the running competition is kept).

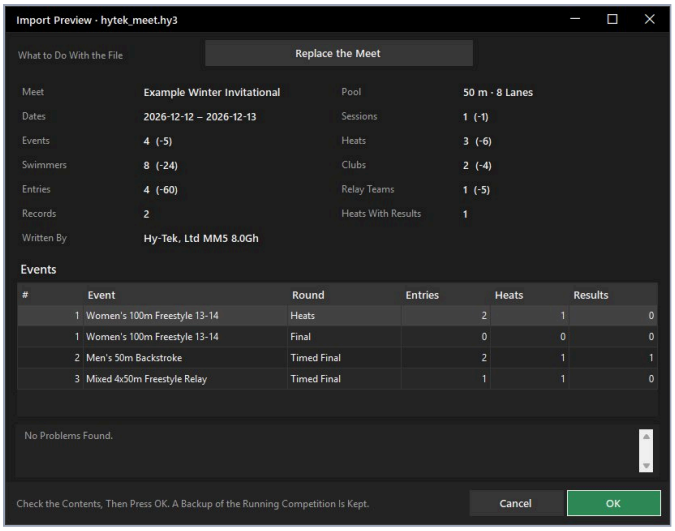


Figure 171. A Hy-Tek Meet Manager meet (.hy3): Heats and Final of event 1, results of event 2

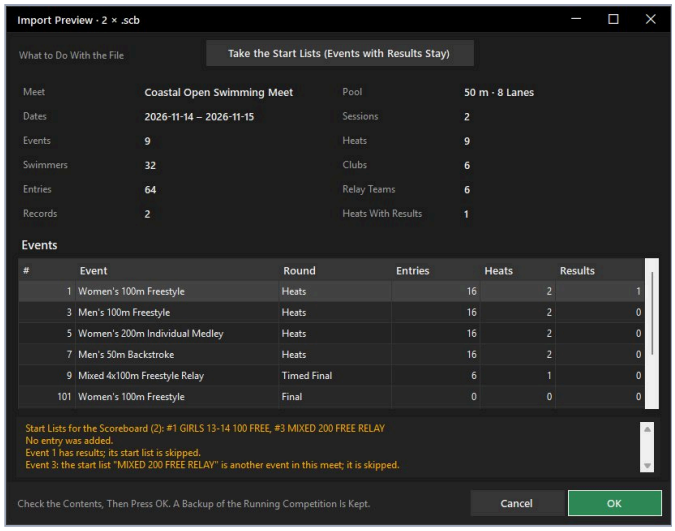


Figure 172. Two Hy-Tek scoreboard start lists (.scb) taken into the running meet: an event with results keeps them

1. **Workflow with SPLASH Meet Manager.** In SPLASH seed the session, then export the meet through the *Transfer* menu as **Lenex** with entries and heats (a .lxf file). Copy the file to the aquaticsBoard 7 PC (a USB stick or a shared folder).
2. In aquaticsBoard 7 open the Teams page of swimming and click **Import…**. Choose the .lxf file and read the preview: events, heats and notes. Click **OK**, then **Apply** in the competition editor. The pool (25 m / 50 m, lanes) follows the file.
3. Click **Heat Files…**, choose the folder SPLASH reads (a shared folder on the SPLASH PC, e.g. *MEET-PC**Timing*), tick **SPLASH Meet Manager (Generic Txt Heat Files)** and **Write the Files When a Heat Is Approved**, then **Save**.
4. Run the session on the race desk as usual. Every **Approve** writes *SessionA-EventB-HeatC.txt* for that heat — also when the heat was timed and approved by a timing console (Console Input). In SPLASH add the timing system **Generic Txt Heat Files**, point it to the same folder and read the results of the heat.
5. At the end (or at any time) click **Results… → Export Lenex…**: the .lxf holds every approved result with splits, DSQ / DNS / DNF and the places, under SPLASH's own event, heat and club ids. Import the results from it through the *Transfer* menu of SPLASH. SPLASH makes the official result lists.

1. **Workflow with Hy-Tek Meet Manager.** In Meet Manager seed the session and export the start lists for the scoreboard: *File → Export → Start Lists for Scoreboard*, format **CTS**. It writes one .scb file per event (E001.scb, E002.scb …). Or export the whole meet from the same *File → Export* menu (results for Team Manager, or entries: a .zip with a .hy3 and a .cl2).
2. In aquaticsBoard 7 click **Import…** on the Teams page. Choose all .scb files at once (Ctrl+A in the file window): their events are put into the meet, events that already have results are not touched. A .hy3, .cl2 or .zip file replaces the meet instead (heats and lanes as Meet Manager seeded them; events with preliminaries come as Heats and Final). Check the preview, **OK**, **Apply**.
3. After Meet Manager seeds the next round (or changes a heat) export the .scb files again and import them again: the swimmers are found again by name and team.
4. Click **Heat Files…**, choose the folder Meet Manager reads, tick **Hy-Tek Meet Manager (Generic Network File Sharing, .ge2)** and **Write the Files When a Heat Is Approved**, **Save**.
5. In Meet Manager choose the timing interface *Set-up → Timing Console Interface → Generic Network File Sharing* (this needs Meet Manager's timing console interface option) with the same folder; in *Run*, **Get Times** (F3) reads the heat after each approval. Meet Manager uses the last split as the time and shows the three watches as backup times. The file name carries the session, Meet Manager's event number (12A stays 12A), the heat, the round (P / S / F) and the race number.

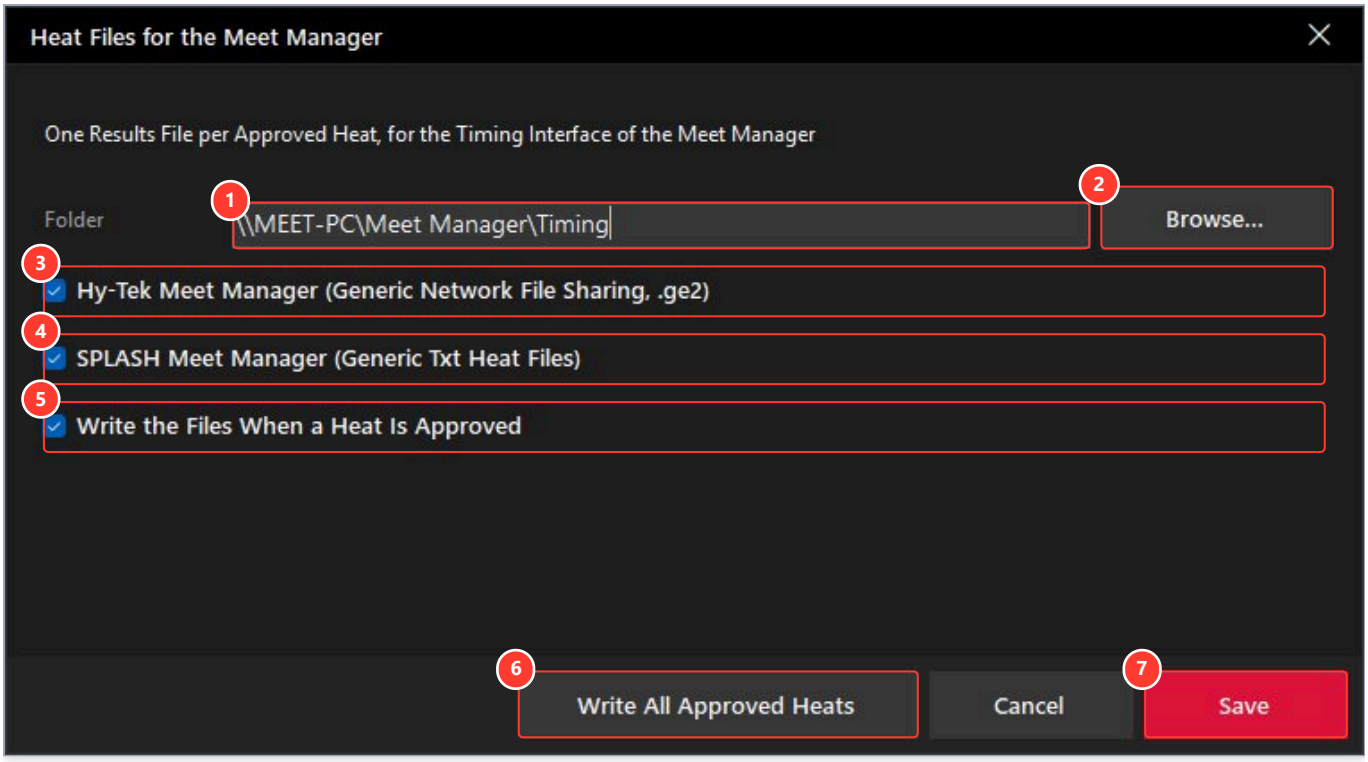


Figure 173. Heat Files for the Meet Manager (Teams page → Heat Files...)

#	Control	What it does
1	**Folder**	The folder the meet manager reads: a folder on this PC or a shared folder on the meet manager's PC (*PC**share*). It must be a full path.
2	**Browse...**	Chooses the folder in a folder window.
3	**Hy-Tek Meet Manager**	One *.ge2* file per heat (Hy-Tek's "Format for File Sharing of Results"): the place, the splits and the finish in seconds, the three watches as backup times; a disqualified lane is **Q**.
4	**SPLASH Meet Manager**	One *SessionA-EventB-HeatC.txt* per heat: lane, the split times, the finish time and the three watches. Lanes without a time (DNS, DNF) are left out: SPLASH keeps its own decisions for them.
5	**Write the Files When a Heat Is Approved**	Writes the files of a heat at its approval, whoever approves it: the desk, the remote, the Referee's phone or a timing console. A heat approved again after **Unlock** replaces its files. A failure (folder not reachable) never stops the approval; it is shown in this window and written to the log.
6	**Write All Approved Heats**	Writes the files of every approved heat now (after a change of folder, or when the meet manager was started late).
7	**Save**	Keeps the settings on this PC (settings.json). Without a folder and a meet manager the files are off. **Cancel** (or Esc) asks before it drops changes.

Heat file	Example
Hy-Tek GNET	*001-012A01F0007.ge2*: first line *12A;1;2;F;110;aquaticsBoard 7;version* (event, heat, number of times per lane, round), then twelve lane lines *place;split;finish;watch 1;watch 2;watch 3;;;;*, e.g. *1;30.50;64.50;64.48;64.50;64.52;;;;*
SPLASH	*Session1-Event12-Heat1.txt*: *LANE;TIME50;TIME100;BACKUP1;BACKUP2;BACKUP3*, then one line per lane, e.g. *4;30.50;1:04.50;1:04.48;1:04.50;1:04.52*

- The meet manager stays the master of the entries: change entries and seeding there and import again. Results already swum in aquaticsBoard 7 stay (an import with results asks first and keeps a backup).
- Lenex out writes results without a time as *00:00:00.00* with their status, a disqualified swimmer with the time and the reason, the relay swimmers in order, and the places of the event; SPLASH ranks its age groups itself.
- What cannot go across: Hy-Tek's own files (.hy3, .cl2) are read, never written (Meet Manager takes results only through its timing interface); SPLASH and Meet Manager send no live data (start lists come as files); reaction times and touchpad times do not exist in hand timing.
- Hy-Tek pools in yards are shown as a 25 m pool (the times are not changed); Hy-Tek files do not say how many lanes the pool has: 8, more when the file uses lanes 9 or 10, numbered from 0 when it uses lane 0.

Troubleshooting the Meet Manager Files

Problem	What to do
The import says *Not a Lenex file* or *not valid XML*.	Export the meet again as Lenex (.lxf) from the meet manager. A .lxf is a zip file: do not unpack or edit it.
Swimmers are missing after the import.	Read the notes of the preview: entries with the status WDR, SICK, RJC or DNS, and entries without a heat in a seeded event (late or withdrawn) are not placed. Seed the session in the meet manager and export again.
The results do not reach SPLASH / Meet Manager.	Open **Heat Files...**: the folder must be the one the meet manager reads, **Write the Files When a Heat Is Approved** must be ticked and the right meet manager chosen. The last files written (or why they could not be written) are shown at the bottom of the window. A shared folder needs write access from the aquaticsBoard 7 PC. **Write All Approved Heats** writes everything again.
An .scb start list is skipped: *is another event in this meet*.	The meet has an event of the same number that is another kind of event (a relay list for an individual event, another distance): the meet was not made from this Meet Manager meet. Import Meet Manager's .hy3 / .zip first (it replaces the meet), or give the events the numbers Meet Manager uses.
Meet Manager reads the wrong event.	The .ge2 file names Meet Manager's own event number only when the meet came from Meet Manager (.scb, .hy3, .cl2). For a meet typed in aquaticsBoard 7 the event numbers of aquaticsBoard 7 are used: keep them the same as in Meet Manager.
SPLASH does not find the heat file.	The file name is *Session1-Event12-Heat3.txt*: the session and event numbers of aquaticsBoard 7 must be SPLASH's (they are when the meet came from SPLASH's Lenex file).
SPLASH puts the results into a different event.	Import the meet from SPLASH (Lenex) instead of typing it: the Lenex export then carries SPLASH's event and heat ids. Events added in aquaticsBoard 7 get new ids SPLASH does not know.
A heat file has an empty lane that swam.	The lane had no time at the approval (DNS / DNF, or no watch). Unlock the heat, give the time, approve again: the files are written again.

Time Settings

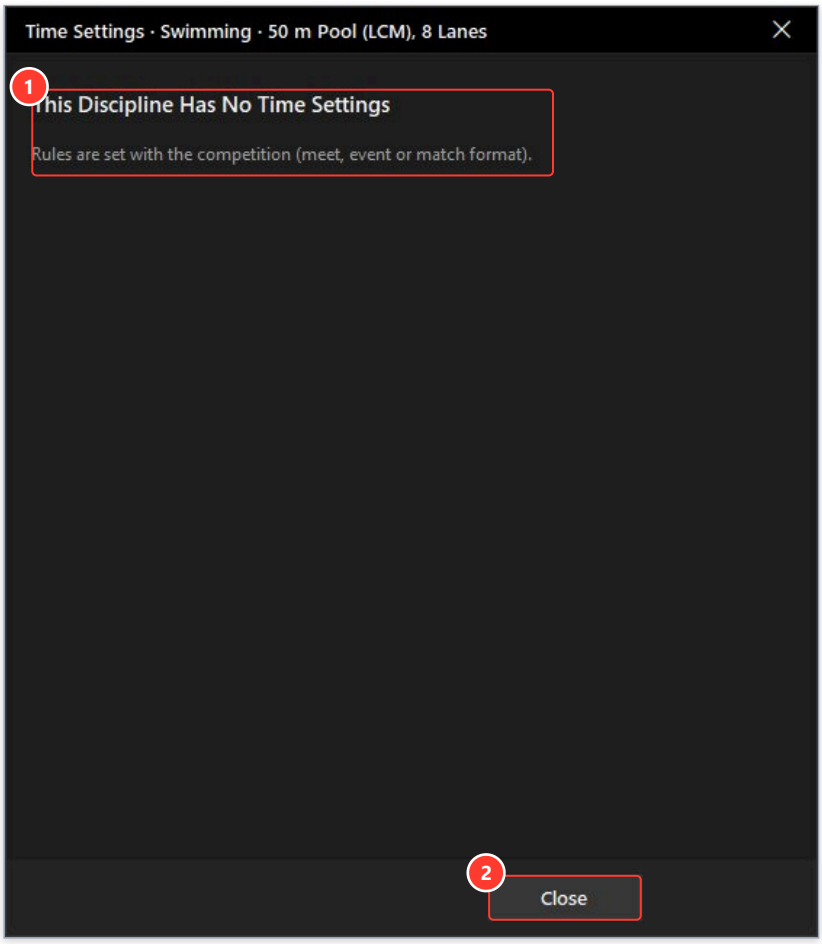


Figure 174. Time Settings of swimming

#	Control	What it does
1	**This Discipline Has No Time Settings**	Swimming has no periods or clock lengths: pool, lanes, splits, watches and seeding come from the preset; the rest belongs to the meet.
2	**Close**	Closes the window (there is nothing to save or reset).

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the swimming panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Horn	Num 2
Undo	F12
Next Heat, Previous Heat, Start, End Race, Approve, Build the Next Round, Create the Swim-Off	none – assign the keys you need

> **Note** Commands that need a lane, a heat or a typed time (Call Heat, Split, Finish, Watch Time, Official Time, DNS, DNF, Disqualify, Status OK) and the commands that cannot be undone (Recall the Start, Unlock, Reset the Heat, Seed Heats, Scratch) are not in the list: use the desk or the remote for them.

The Swimming Boards

Every output follows the called heat. The St board lists the lanes with swimmer and club, the status box (Scheduled, On the Blocks, Race in Progress, Unofficial, Official), the race clock and the Next line at the bottom; during the race splits and places appear, after the race the lanes are sorted by place.



Figure 175. St – the heat during the race

#	Control	What it does
1	Event	The called event.
2	Heat · round	The heat (*Heat 1*) and the round (*Heats*, *Final* …).
3	Status	Scheduled · On the Blocks · Race in Progress · Unofficial · Official.
4	Race clock	Runs from Start; shows the winning time after the race.
5	Lanes	Lane, swimmer, club; during and after the race also split / time and place. The Live Board button puts this screen on air.
6	Next line	The same text as the Next line of the desk.

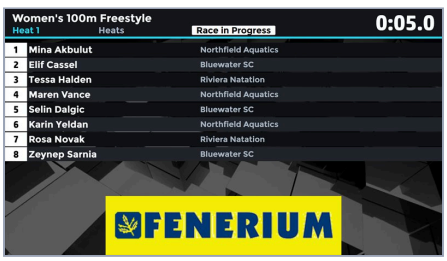


Figure 176. Sp – the heat above the sponsor area

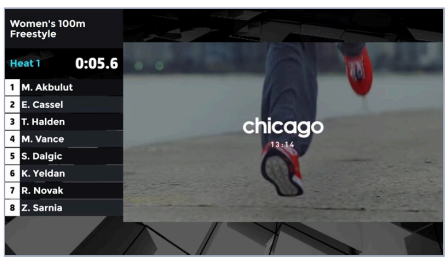


Figure 177. Ad – event, heat, race clock and a compact lane list (lane, short name, time, place) beside the advert



Figure 178. CK – lane list, race clock and status as a chroma-key overlay

The other screens of swimming:

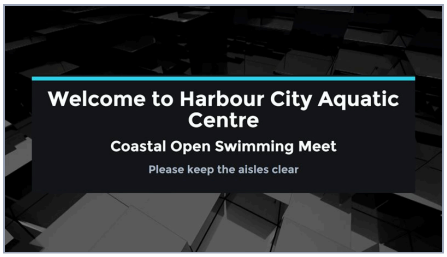


Figure 179. St Announce – the announcement title (a long title takes two lines) and the lines of the Info page – Announce under Board or Show on the Info page.

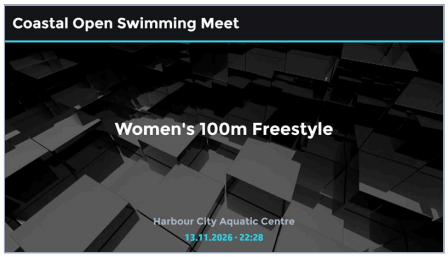


Figure 180. St Intro – the meet name, the called event, the venue, date and time – Intro under Board on the race desk, in the St row or on the Info page.



Figure 181. St Result – the result of the event over all its heats: place, swimmer, club, time and the qualification mark Q, with the status (Unofficial / Official) – Result under Board on the race desk after the approval.



Figure 182. CK Lower Third – the announcement as a broadcast lower third – Lower Third in the CK row or Show on the Info page.



Figure 183. CK Result – the event result as a broadcast table (place, swimmer, club, time) – Result in the CK row, or Result under Info Screens of the Info page.

Remote Control (Swimming)

Swimming has its own remote view: the heat, the lanes with Split and Finish, the race buttons and the program. Sign in as described in *Remote Control*. A timekeeper or the referee can work the race from the pool deck while the desk shows the same state.

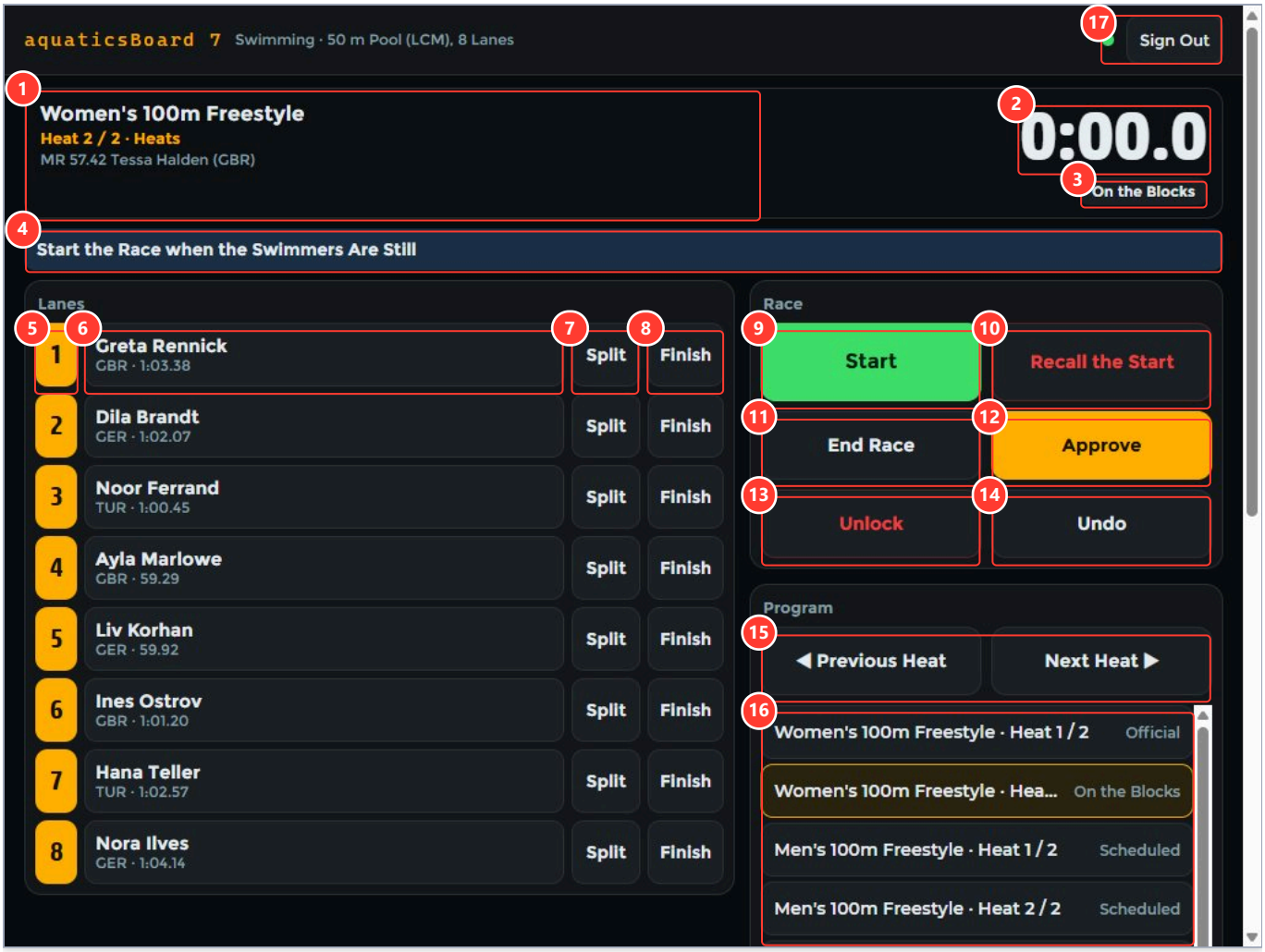


Figure 184. The swimming remote on a tablet (heat 2 On the Blocks)

#	Control	What it does
1	**Heat card**	Event, heat and round (amber) and the record to beat.
2	**Race clock**	Runs (green) during the race.
3	**Status chip**	On the Blocks, Racing (red), Unofficial, Official (green).
4	**Next line**	The step the desk expects. Below it an amber **⚠ Check Lanes …** line appears when lanes need a check.
5	**Lane number**	Lane 1 … 8 (0 … 9).
6	**Lane (tap)**	Swimmer, nation and entry time (later split or time) and the place. Tap it for the lane sheet: Official Time, DNS, DNF, Disqualify, Status OK, Scratch: Call the Reserve.
7	**Split**	Records the next split of the lane (watch 1), like the desk.
8	**Finish**	Records the touch; it turns green when the lane's time is in. Split and Finish are disabled for an empty, DQ, DNS or DNF lane.
9	**Start**	Starts the race; disabled while a race runs.
10	**Recall the Start**	Asks *Recall the Start? This cannot be undone from the remote.* – Yes recalls the start.
11	**End Race**	Ends the race by hand, or closes a heat On the Blocks for paper times.
12	**Approve**	The referee's approval.

#	Control	What it does
13	Unlock	Takes the approval back after a Yes.
14	Undo	Takes back the last action.
15	◀ Previous Heat / Next Heat ▶	Calls the previous or next heat.
16	Program	Every heat with its status; the called heat has an amber frame. Tap a heat: *Call Heat?* – OK calls it. Below the list: **Seed Heats** and **Reset the Heat** (both ask Yes / No first), **Build the Next Round** and **Create the Swim-Off**.
17	● · Sign Out	Green dot = connected. Sign Out ends the session after a Yes.

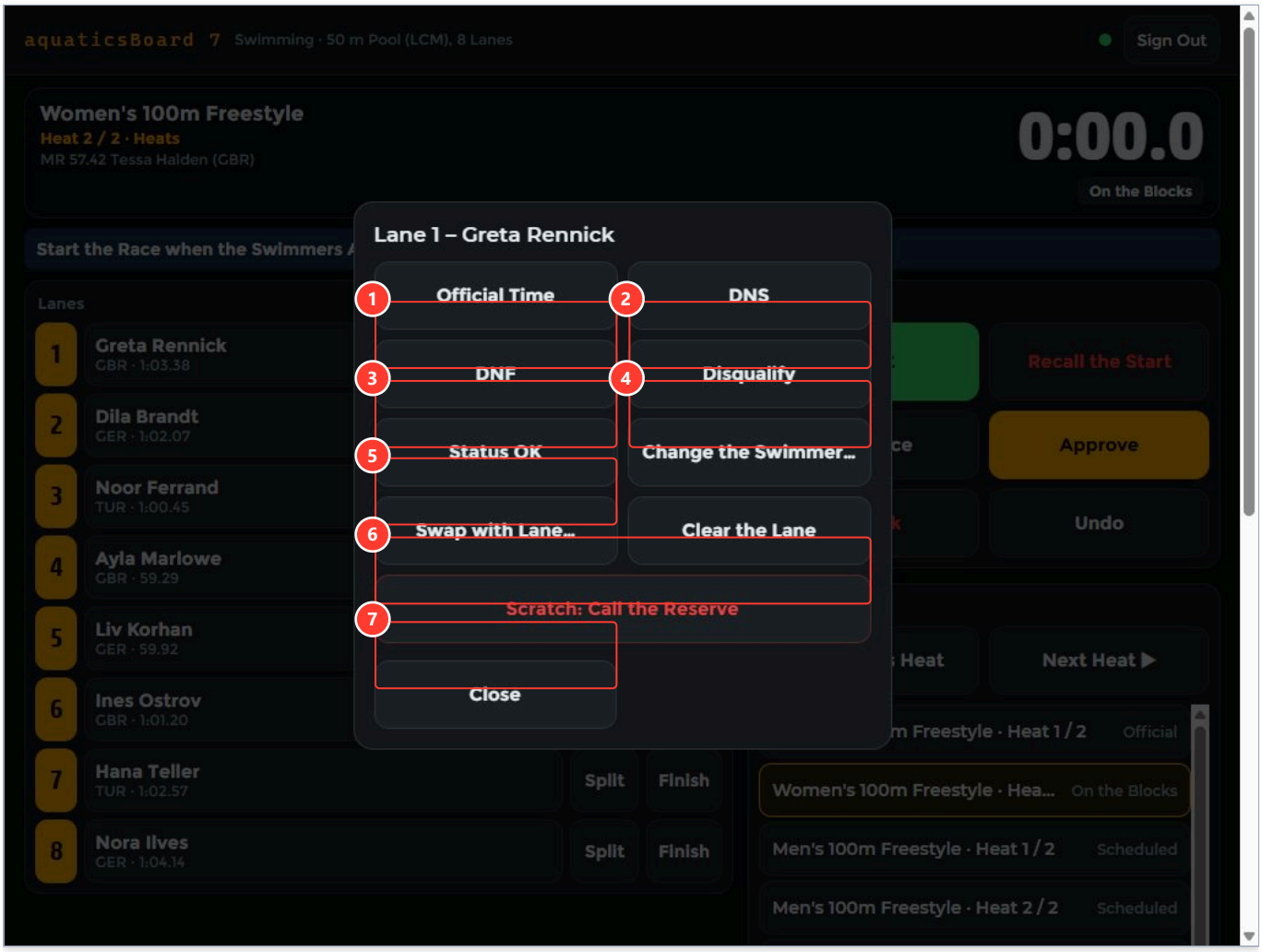


Figure 185. The lane sheet (tap on a lane)

#	Control	What it does
1	Official Time	Opens an input with the lane's time; type m:ss.hh and tap OK.
2	DNS	Did not start.
3	DNF	Did not finish.
4	Disqualify	DQ – the lane gets no place.
5	Status OK	Removes DQ, DNS or DNF.

#	Control	What it does
6	**Scratch: Call the Reserve**	Before the start of a semi-final or final: the swimmer withdraws, the next reserve is called and the round is seeded again; in a heat the lane becomes DNS. Asks Yes / No first; refused once the race has started.
7	**Close**	Closes the sheet.

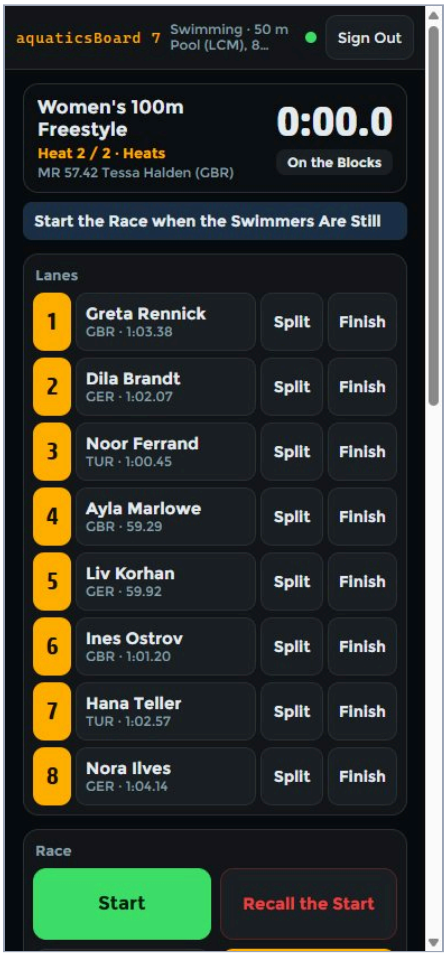


Figure 186. Phone – heat card and lanes

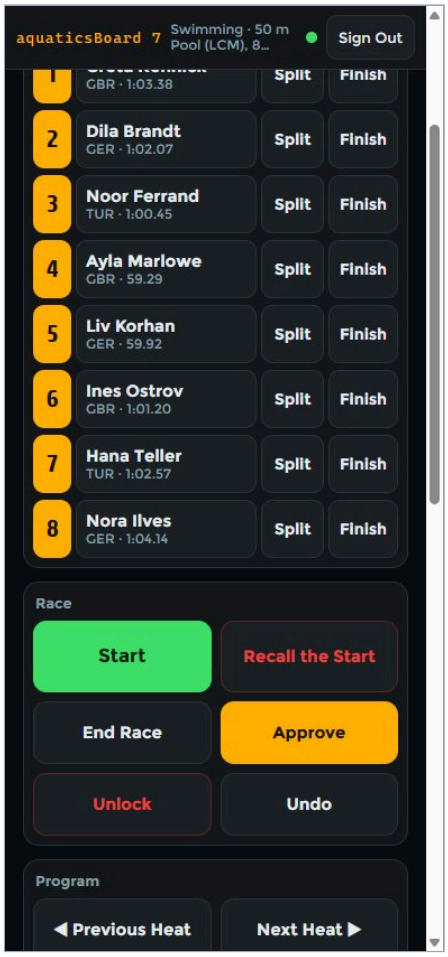


Figure 187. Phone – the Race buttons below the lanes

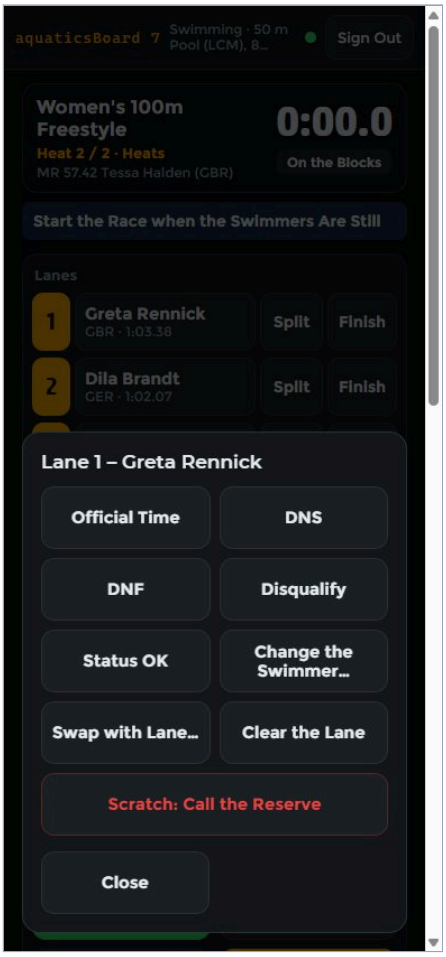


Figure 188. Phone – the lane sheet

Remote button	Desk equivalent	Confirmation on the remote
Split / Finish	Split / Finish in the lane row	none
Lane → Official Time / DNS / DNF / Disqualify / Status OK	lane menu (right click)	time input
Lane → Scratch: Call the Reserve	– (remote only)	Yes / No
Start · End Race · Approve · Undo	same buttons	none
Recall the Start · Unlock	same buttons	Yes / No
◀ Previous Heat · Next Heat ▶ · program row	same buttons · Call the Selected Heat	program row: Call Heat? OK

Remote button	Desk equivalent	Confirmation on the remote
Seed Heats · Reset the Heat	Seed Heats · – (Reset the Heat: remote only, puts the heat back On the Blocks and clears its race data; not while racing)	Yes / No
Build the Next Round · Create the Swim-Off	Build the Next Round · – (Create the Swim-Off: remote only, adds a swim-off after the event when swimmers tie for a qualifying place)	none

Swimming Scenarios

1. Click **Next Heat ▶**. The heat is *On the Blocks* on the desk and the board.
2. At the start signal click **Start**. The race clock runs green, the status turns red (Racing).
3. The recall rope drops: click **Recall the Start**. The clock and all presses are dropped and the heat is On the Blocks again.
4. If the referee disqualifies the swimmer who caused the false start, right-click the lane → **DQ**. The lane turns red and stays DSQ for the restart.
5. Click **Start** at the new start signal and time the heat with **Split** / **Finish** as usual.

1. The last swimmer touches; the race ends by itself and the status is *Unofficial*. The Next line says *Check the Times and Approve the Result*.
2. An amber ⚠ **Check Lanes 2** appears: hover lane 2 — only one watch was pressed. Right-click lane 2 → **Official Time…** and type the back-up time, e.g. `1:02.47`.
3. Right-click lane 6 → **DQ**. The time column shows DSQ and the lane loses its place.
4. The referee signs: click **Approve**. Places, points and any record mark are written; the board shows *Official*.
5. The DQ is withdrawn on appeal: click **Unlock**, right-click lane 6 → **OK**, then **Approve** again.
6. Click **Result** under Board to show the event result, then **Next Heat ▶**.

1. Turn the remote on (tool strip) and sign in on the tablet (see *Remote Control*). The swimming view shows the called heat.
2. The timekeeper taps **Start** at the signal and **Finish** in each lane at the touch; the desk and the St board follow at once.
3. A swimmer does not start: tap the lane → **DNS**, so the race can end by itself.
4. After the race the referee checks the times on the desk and clicks **Approve** (or taps Approve on the tablet).
5. The desk operator shows **Result**; the timekeeper taps **Next Heat ▶**.

21 Diving

Diving runs on the dive desk: the running order and the dive sheet on the left, the diver on the board, the judges' awards, the keypad and the referee's penalties in the middle, the standings and the info screens on the right. Each dive goes **Waiting** → **Scoring** → **Published**.

Preset group	Presets	Judges
World Aquatics individual	Men's / Women's 1m and 3m Springboard, 10m Platform	7 (2 highest and 2 lowest cancelled)
World Aquatics synchronised	Men's / Women's Synchronised 3m and 10m	9 or 11 in groups (execution and synchronisation)
Age group	Junior Synchronised 3m (9 Judges)	9
High school	High School 6-Dive Dual Meet, High School 11-Dive Championship	3 or more
College	College 1m / 3m Dual Meet, College 1m / 3m Championship (11 Dives)	as the preset

The points of a dive are the sum of the counted awards × the degree of difficulty (DD), rounded to two decimals; synchro: the counted sum × 3/5 × DD. The DD comes from the built-in dive table for the dive, the position and the height. Divers are ranked by the total of their published dives; equal totals share a rank, divers who have not dived yet are listed unranked (–), withdrawn divers last.

Choosing the Event

Discipline (Diving)	What it is
World Aquatics individual	Men's / Women's 1m and 3m Springboard and 10m Platform, seven judges.
World Aquatics synchronised	Men's / Women's Synchronised 3m and 10m with execution and synchronisation judges.
Junior Synchronised 3m (9 Judges)	The age-group synchro event.
High school	6-Dive Dual Meet and 11-Dive Championship.
College	1m / 3m Dual Meet and 1m / 3m Championship (11 Dives). The selected event is lit amber; a click switches at once (the competition is saved first).

The Dive Desk



Figure 189. The dive desk while the awards of a dive are typed (Scoring)

#	Control	What it does
1	**Running**	The running order: start number, diver, the dive of this round, DD and points so far. The diver on the board is lit blue. Click a row to call that diver for the current round.
2	**Dive Sheet**	All dives of the current diver: round, dive, DD, description and points. Click a row to go to that round of the diver (e.g. to correct an earlier dive).
3	**Status band**	What is happening (e.g. *Scoring*, *Now Diving*).
4	**Event and round**	Event name and *Round 1 / 5*.
5	**Dive state**	Waiting (grey) · Scoring (amber) · Published (green).
6	**Diver**	Name (synchro: both names), club and nation.
7	**Dive · DD · penalty**	Dive number with position letter (A straight, B pike, C tuck, D free), its DD and, on the right in red, a penalty set by the referee.
8	**Description · next · points**	Dive name, position and height; below it the next diver and dive, and on the right the points once the dive is published.
9	**Judge boxes J1 … J7**	One box per judge (synchro: E and S groups). Click a box to select that judge for the keypad; the selected box is blue. It shows the typed award, ✓ for an award received, and after publishing the awards — cancelled ones dimmed.
10	**Keypad 0 … 10**	Gives the selected judge that whole award and selects the next judge at once, so seven awards are seven clicks. The first award opens scoring by itself.
11	**½**	Adds a half point to the award just typed (7 → 7.5), even though the next judge is already selected. A 10 or an award that already has a half gets no further half.
12	**⌫**	Clears the award just typed and selects that judge again, ready for the right award.
13	**Open Scoring**	Opens the dive for scoring (Waiting → Scoring) when the judges show their cards.

#	Control	What it does
14	**Publish**	Scores the dive, adds the points to the diver's total and shows them on the boards. With an award missing the desk asks **Publish Anyway?** (see below). Without any award, and for a dive already published, it is refused. A Failed Dive needs no awards.
15	**Failed Dive**	Referee: failed dive — 0 points; it can be published without awards.
16	**Re-Start −2**	Referee: a second start (balk) — 2 points are deducted from every award.
17	**Max 2**	Referee: dive in the wrong position or not safe — no award above 2.
18	**Max 4½**	Referee: arms not as required at the entry — no award above 4½.
19	**No Penalty**	Removes the penalty. One penalty at a time: a new one replaces the old one. On a published dive the points change at once.
20	**◀ Previous Diver**	Goes back one dive in the running order (to the end of the previous round at the start of a round).
21	**Correct**	Reopens the current published dive — or the last published dive — for scoring. The awards stay; change the wrong one and click Publish again.
22	**Change Dive…**	Opens *Change Dive* (see below). Refused once awards are in.
23	**Next Diver ▶**	Calls the next diver (the first of the next round after the last). Refused while the current dive is not published. Withdrawn divers are skipped.
24	**Standings**	Rank, name and total of the published dives; divers who have not dived yet show – and no total.
25	**Info Screens**	Puts the St board on the live dive, the intro, the result or the announcement; the screen on air is lit cyan.
26	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.
27	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
28	**New Match**	Starts the sport again after a confirmation. The competition (heats, results, published dives) is saved first and loaded again, so finished results are kept.
29	**Sport · discipline ▾**	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
30	**Time Settings**	Opens the Time Settings window. Diving has no clock lengths to set: the window only says *This Discipline Has No Time Settings* (see below).

Scoring a Dive

1. The diver is on the board: the desk shows name, dive and DD; the board shows the dive with empty judge boxes.
2. Optional: click **Open Scoring** when the judges show their cards (the state turns amber).
3. J1 is selected. Type the award: **7** gives J1 a 7 and selects J2 at once; for 7.5 click **½** straight after the 7.
4. Enter all judges the same way. A wrong award: ⌫ straight after it, or click that judge's box and type it again.
5. If the referee calls a penalty, click it (Failed Dive, Re-Start −2, Max 2, Max 4½).
6. Click **Publish**. The cancelled awards are dimmed, the points and the new total appear and the standings update.
7. Click **Next Diver ▶**.

Diving Dialogs

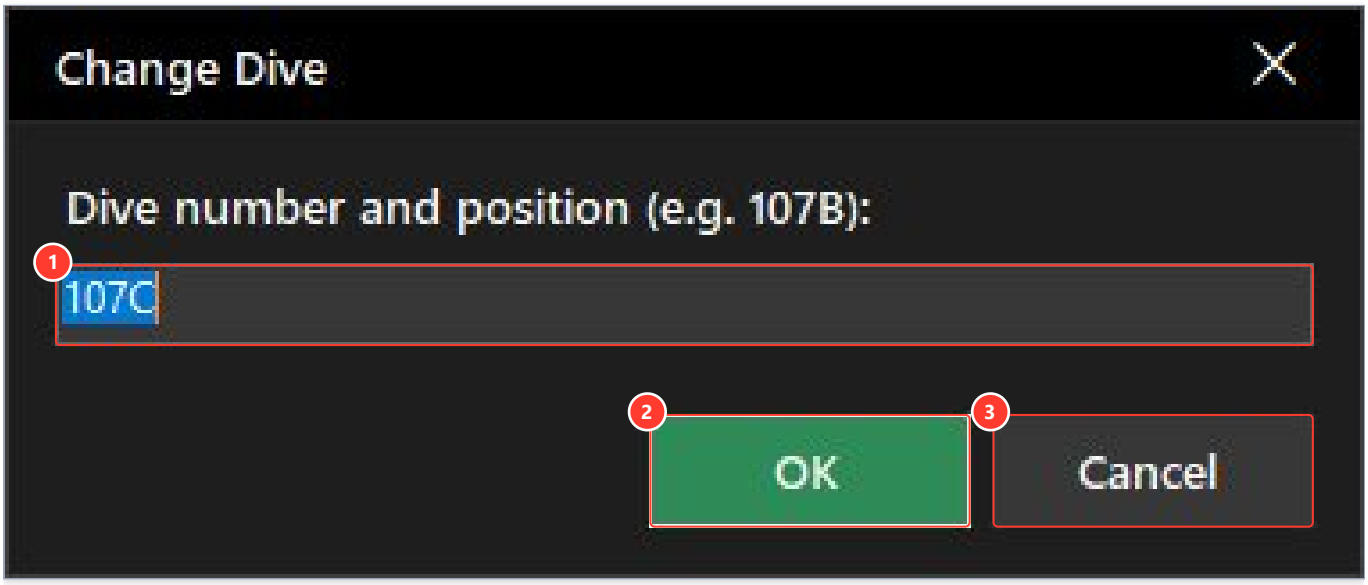


Figure 190. Change Dive

#	Control	What it does
1	**Dive number and position**	The current dive is filled in. Type the declared dive with its position letter, e.g. `205B`; the DD is looked up for the height of the event.
2	**OK**	Changes the dive on the desk and the boards. Refused when awards are already in, when the position letter is missing, or when the dive is not possible from that height.
3	**Cancel**	Keeps the dive.

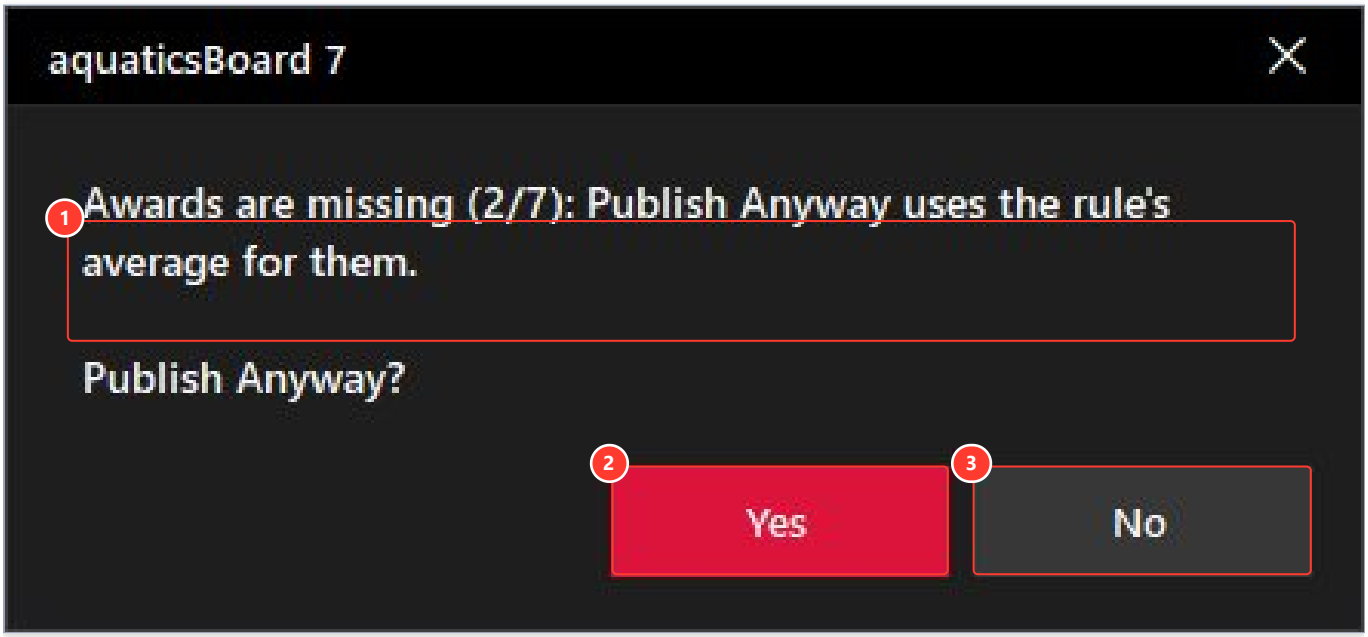


Figure 191. Publish Anyway? (two of seven awards typed)

#	Control	What it does
1	**Awards are missing (2/7)**	How many awards are in. Publish Anyway uses the rule's average for the missing ones (synchro: every judge group needs at least one award, otherwise publishing is refused).
2	**Yes**	Publishes now with the average standing in for the missing awards.

#	Control	What it does
3	No	Goes back to the keypad so you can type the missing awards first.

Officials' Phones and PINs

Every judge can enter the awards on an own phone: **Phones and PINs...** on the Teams page opens the list of seats. Each seat has its own random four-digit PIN (never the operator PIN of the remote control) and its own QR code. A phone opens the address of the card (or scans the code), signs in with the seat PIN and sees only what its seat may do.

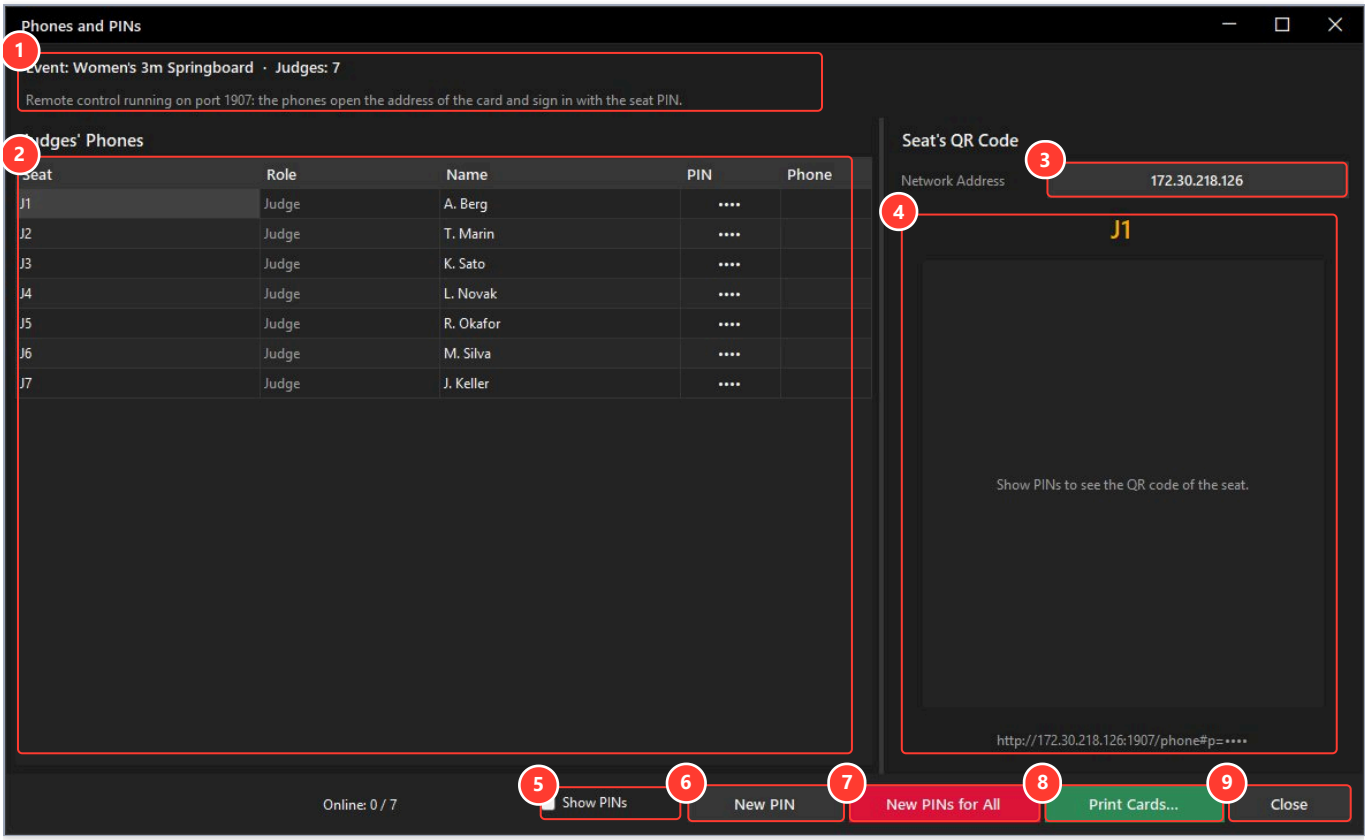


Figure 192. Phones and PINs (diving: the judges)

#	Control	What it does
1	**Competition and server**	The event and the number of judges, and whether the remote control runs (the phones need it: Settings → Remote Control).
2	**Seats**	**Seat**, **Role**, **Name**, the **PIN** (•••• until Show PINs is ticked) and **Phone** (a dot when the phone of the seat is online). Select a seat to see its QR code on the right. The judges' names come from the competition editor.
3	**Network Address**	The address of the PC that the phones use (one entry per network adapter); the QR code and the cards use it.
4	**Seat's QR Code**	The code and the address of the selected seat, shown only while **Show PINs** is ticked.
5	**Show PINs**	Shows the PINs and the QR code. Keep it off while others can see the screen.
6	**New PIN**	Gives the selected seat a new PIN after a question; its phone must sign in again.
7	**New PINs for All**	Gives every seat a new PIN after a question; all phones must sign in again.

#	Control	What it does
8	**Print Cards…**	Opens one card per seat (seat, address, PIN and QR code) in the browser for printing. The cards are confidential: each holds the PIN of its seat.
9	**Close**	Closes the window; the PINs stay.

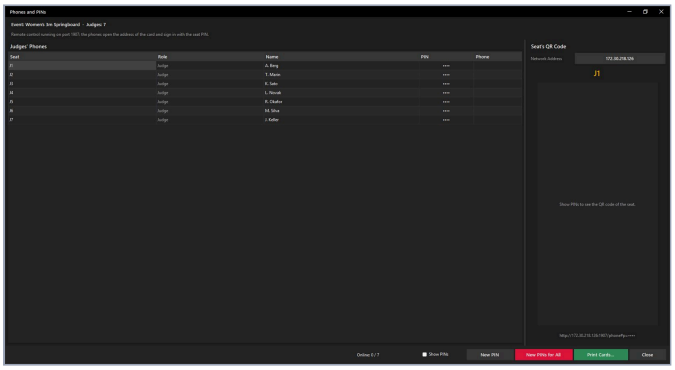


Figure 193. The same window maximised: all seats at a glance

Event Data, Info and Screens Pages

For diving the Teams page holds the event: **Event Name**, **Event Subtitle**, **Venue**, a summary with the event and the number of judges, and **Save Competition**, which saves the texts with the running order, the dive sheets, the awards and the results (see *Swimming and Diving: the Competition Page*).

The Info and Screens pages of diving have the same rows as those of swimming: Show On, Announce, Scrolling Text (Sp) and the Info Screens Intro, Result and Announce; Game, Intro, Result, Announce for St and Game, Lower Third, Result for CK (see *The Info Page of Each Sport* and *The Screens Page of Each Sport*).

Time Settings

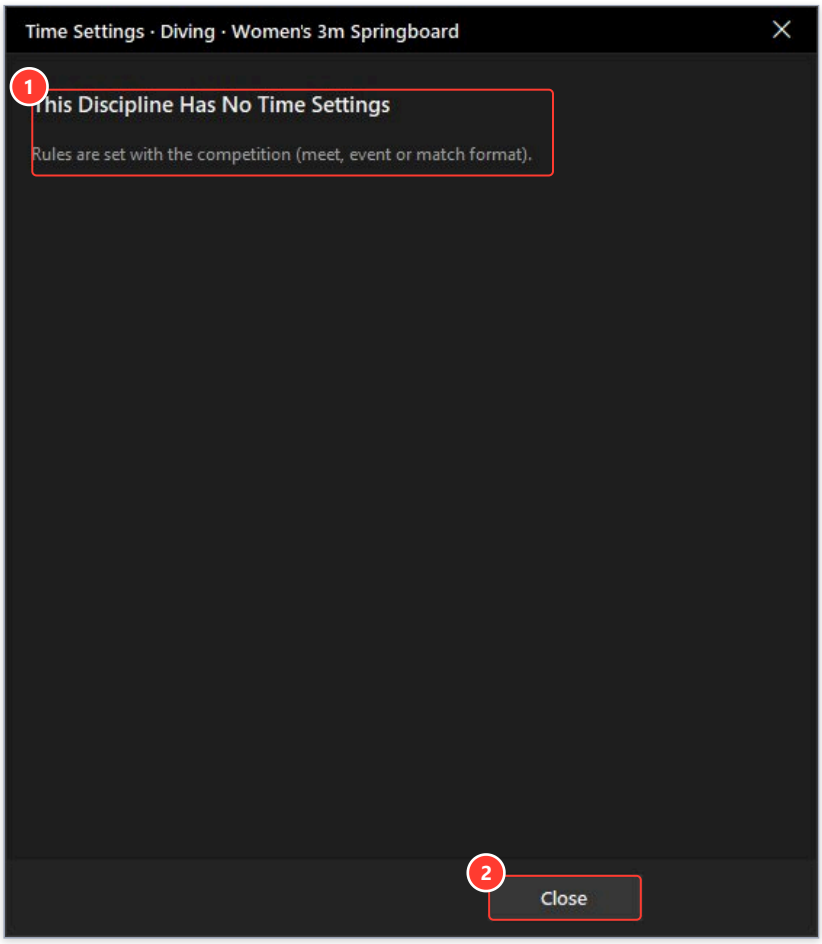


Figure 194. Time Settings of diving

#	Control	What it does
1	**This Discipline Has No Time Settings**	Diving has no clock. Judges, rounds, cancelled awards and penalty values come with the preset (event).
2	**Close**	Closes the window.

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the diving panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Horn	Num 2
Undo	F12
Open Scoring, Publish, Publish With Average, Correct, Failed Dive, Re-Start −2, Max 2, Max 4½, No Penalty, Previous Diver, Next Diver	none – assign the keys you need (Publish, Next Diver and the penalties are the useful ones)

> **Note** Commands that need a judge, a dive or a typed value (Award, Clear Award, Select Dive, Change Dive) and the commands that cannot be undone (Withdraw, New Match) are not in the list: use the desk or the remote for them.

The Diving Boards

The St board shows the event and round, the diver with club and nation, the dive with its description and DD, a box per judge, the points of the dive, the total and the rank, and the next diver. Points, Total and Rank stay hidden until there is a value. The CK overlay is a lower third with the same items.

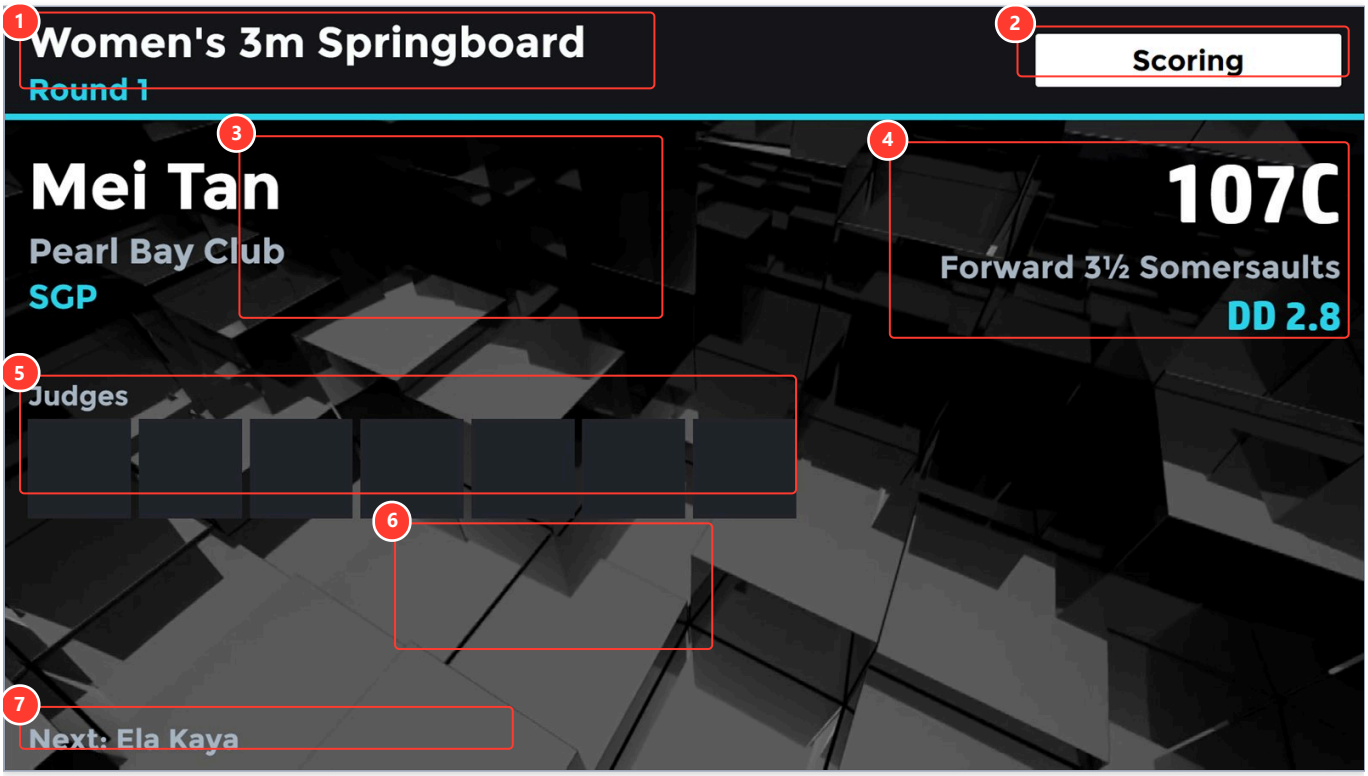


Figure 195. St – the diver on the board, before the awards

#	Control	What it does
1	Event · round	Event name and round.
2	State	Waiting, Scoring or Published.
3	Diver	Name, club and nation (synchro: both divers).
4	Dive	Dive number, description and DD.
5	Judges	One box per judge; the awards appear when the dive is published, cancelled ones dimmed.
6	Points · Total · Rank	Shown once the diver has a published dive.
7	Next	The next diver.

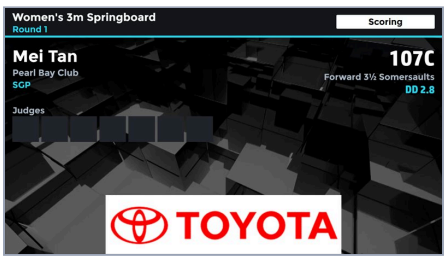


Figure 196. Sp – the dive above the sponsor area

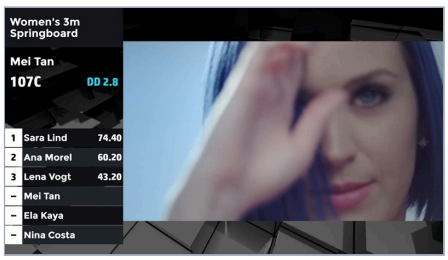


Figure 197. Ad – event, diver, dive and the top of the standings beside the advert

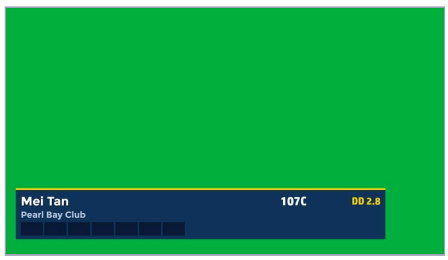


Figure 198. CK – lower third with diver, dive, DD and judge boxes

The other screens of diving:

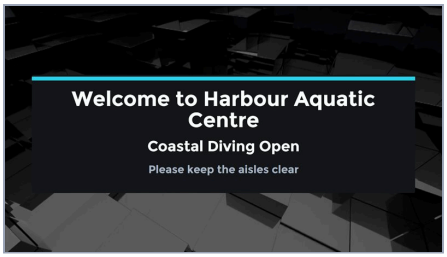


Figure 199. St Announce – the announcement title (a long title takes two lines) and the lines – Announce under Info Screens or Show on the Info page.

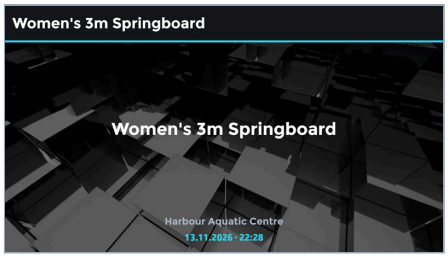


Figure 200. St Intro – the event name with date and time – Intro under Info Screens on the dive desk, in the St row or on the Info page.

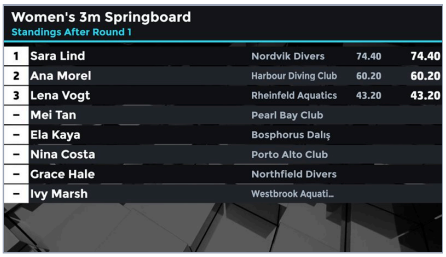


Figure 201. St Result – the standings after the round: rank, diver, club, points of the last dive and total – Result under Info Screens on the dive desk.



Figure 202. CK Lower Third – the announcement as a broadcast lower third – Lower Third in the CK row.

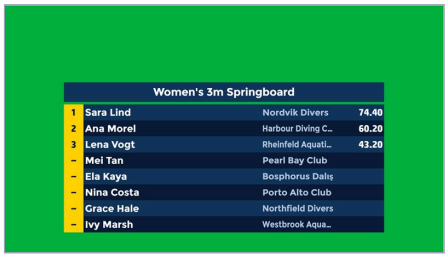


Figure 203. CK Result – the standings as a broadcast table – Result in the CK row, or Result under Info Screens of the Info page.

Remote Control (Diving)

Diving has its own remote view: the diver and the dive, the judges with the keypad, the penalties and the standings. A second operator can type the awards on a tablet next to the judges.

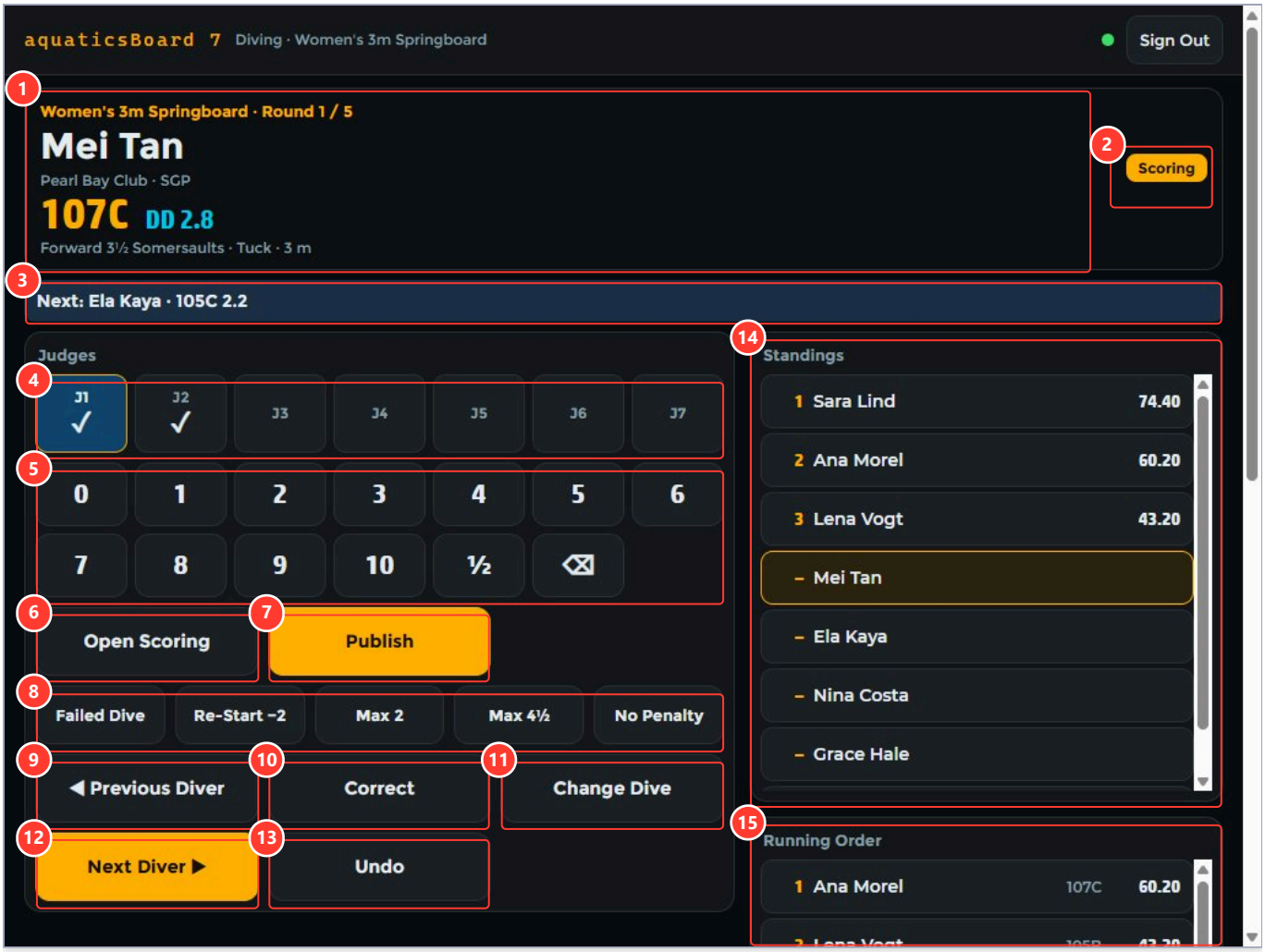


Figure 204. The diving remote on a tablet

#	Control	What it does
1	Dive card	Event and round, diver, club and nation, dive with DD and penalty, description.
2	State · total	Waiting / Scoring (amber) / Published (green), the points of the dive and the diver's total and rank.
3	Next	The next diver and dive.
4	Judges	Tap a judge to select it for the keypad (amber frame).
5	Keypad 0 … 10 · ½ · ⌫	Works like the desk: a whole award goes to the selected judge and selects the next; ½ and ⌫ act on the award just typed.
6	Open Scoring	Opens the dive for scoring.
7	Publish	Publishes the dive; with awards missing it asks *Publish Anyway?* – Yes publishes with the rule's average.
8	Penalties	Failed Dive, Re-Start −2, Max 2, Max 4½, No Penalty.
9	◀ Previous Diver	Back one dive.
10	Correct	Reopens the last published dive.
11	Change Dive	Opens a sheet with the dive number; type the new dive and tap OK.
12	Next Diver ▶	Calls the next diver.

#	Control	What it does
13	Undo	Takes back the last action.
14	Standings	Rank, name and total; the current diver has an amber frame.
15	Running Order	Start number, diver, dive and points. Tap a diver to call him or her. Further down: Match Control with **New Match** (Yes / No).

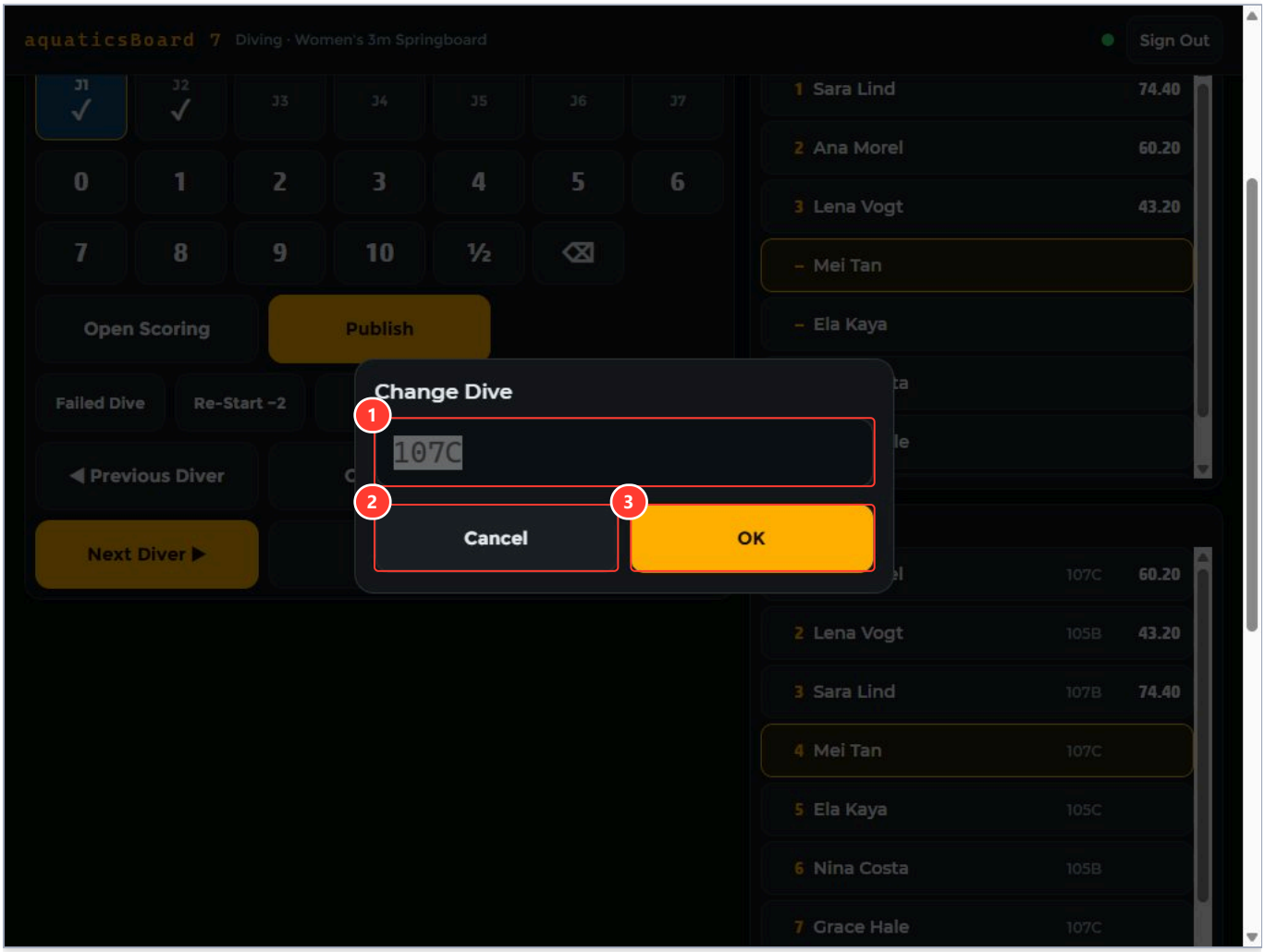


Figure 205. The Change Dive sheet on the tablet

#	Control	What it does
1	Dive number	The current dive is selected; type the new one, e.g. 205B.
2	Cancel	Closes the sheet.
3	OK	Sends the change (refused when awards are in).

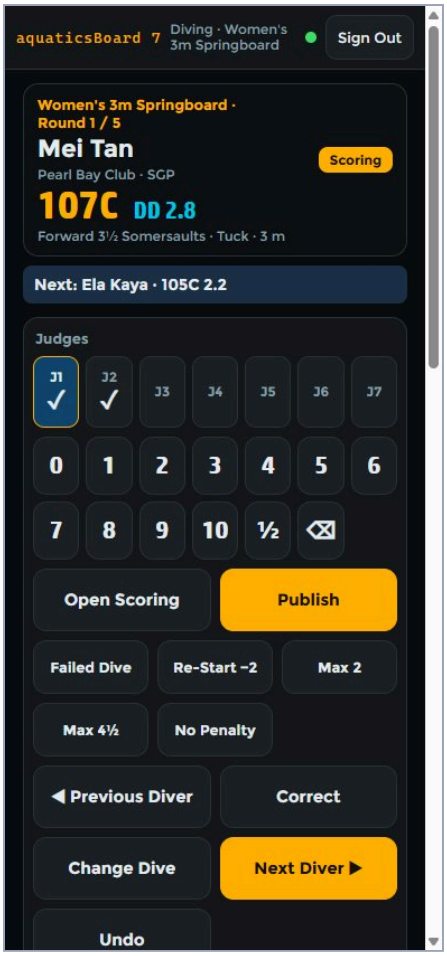


Figure 206. Phone – dive card and judges

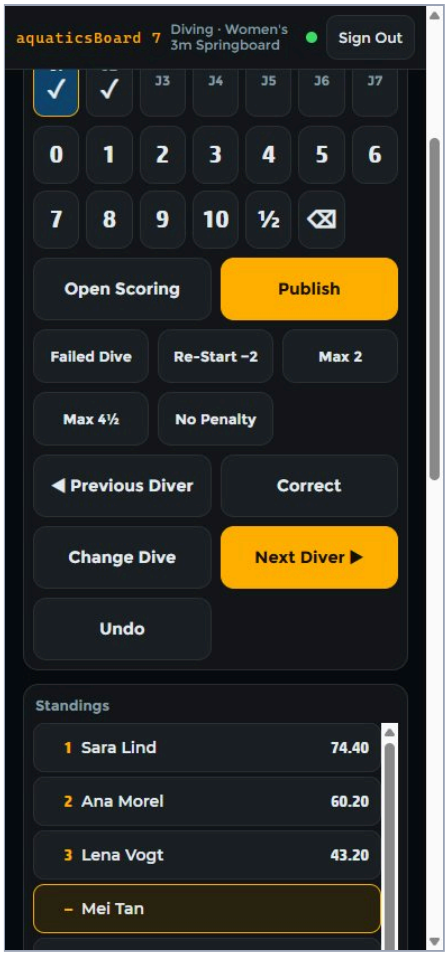


Figure 207. Phone – keypad, penalties and diver buttons

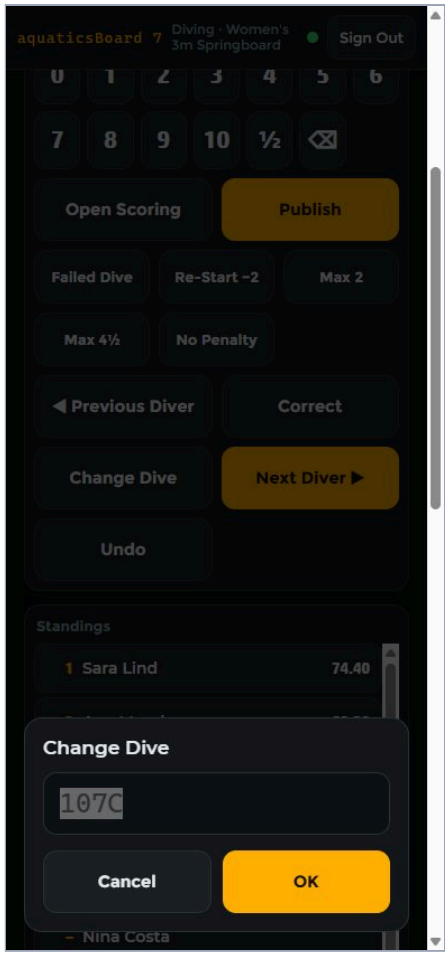


Figure 208. Phone – the Change Dive sheet

Diving Scenarios

1. The referee declares a failed dive. Click **Failed Dive** — the penalty appears in red.
2. Click **Publish** (no awards needed). The dive scores 0.00; click **Next Diver ▶**.
3. The next dive is published, then judge 4 reports a wrong card (6 instead of 6½).
4. Click **Correct**: the last published dive is open again with its awards.
5. Click the **J4** box, type **6** and then **½**, then click **Publish**. Points, total and standings are recalculated.
6. Click **Next Diver ▶** to go on.

1. Before any award is typed click **Change Dive…**, type `205B` and click OK. The desk and the boards show the new dive and DD.
2. Type the six readable awards; leave the seventh judge empty.
3. Click **Publish**. The desk asks *Awards are missing (6/7) … Publish Anyway?*
4. The referee agrees: click **Yes**. The rule's average stands in for the missing award and the points are published.

22 Water Polo

Water polo follows the World Aquatics rules as set in the preset **Water Polo**:

Rule	As implemented
Periods	4 × 8:00 (P1–P4), countdown, tenths below 1:00
Goal	stops the game clock, resets the shot clock to 28, ends **every** running exclusion of both teams
Shot clock	28 s full, 18 s reset, tenths from 5 s; runs with the game clock
Exclusion	18 s; up to six can run at the same time per team
Red card	a tally per team (no time), shown as red cards under the team name
Personal fouls	counted per team and per player; the 3rd personal foul marks the player as out
Timeouts	2 per team for the whole match, 60 s
Draw	no extra time; a penalty shoot-out of 5 (Shoot-Out button, PEN on the boards), the last 5 marks shown

The Water Polo Panel



Figure 209. The water polo panel

#	Control	What it does
1	**Discipline**	The discipline. Click it to open the sport picker.
2	**Team name (home / guest)**	Type the team name here; Enter or leaving the box saves it. Logo and colour stripe come from the Teams page.
3	**Score**	The goals of the team (the guest's on the right).

#	Control	What it does
4	↑ / ↓ (score)	↑ adds a goal (credited to the player in the number box), ↓ takes one back. A goal stops the game clock and resets the shot clock.
5	Foul	Team fouls. Click the number or ▲ to add a foul (credited to the player in the number box; a player's third personal foul marks him out), ▼ to take one back.
6	0:18 / R (penalty buttons)	**0:18** (tool tip *Exclusion 18 s*) starts an 18-second exclusion for the player in the number box. **R** records a red card (tally, no time); **right-click R** takes a red card back.
7	Player number box	Type the cap / shirt number before a goal, foul or penalty, or pick it from the list below. The next action of the team is credited to that player and the box clears. Empty = the team only.
8	Player list ▾	Opens the team list (see *Players and the Number Box* below).
9	Running penalties	Up to 6 penalties of the team: player, remaining time and a red ✕ that removes exactly the penalty of that row. Penalty time only runs while the game clock runs.
10	Game clock	Counts down the period (tenths below one minute); green while running. **Double-click** it to set the time (m:ss or m:ss.t).
11	Stop	Stops the game clock (and with it the shot clock and the penalties).
12	Start	Starts the game clock; a running timeout ends. Refused at 0:00 — choose the next period first.
13	Shot clock	The shot clock (tenths from 5 s). It runs with the game clock. Click the digits to let it run again after it was stopped; **double-click** them to type a value from 0 to 28 (e.g. 7 or 4.5) – the double-click does not start it.
14	18 (reset)	Resets the shot clock to 18 seconds (e.g. after an exclusion or a corner throw).
15	28 (full)	Resets the shot clock to 28 seconds (new possession). A goal does this by itself.
16	⊘ Shot Clock to 0	Sets the shot clock to 0 and stops it, without the shot-clock buzzer; the boards show 0 until you reset it.
17	Timeout	The timeout length; during a timeout the countdown (amber). Click it to end a timeout early. A timeout also ends at zero or when the game clock starts.
18	Timeout lamps	One lamp per timeout of the match; red = used.
19	▶ Timeout (home / guest)	Takes a timeout for the team: the clock stops and the countdown starts. Hidden when the team has none left.
20	1st Period … 4th Period	Starts that period: the clock is set to 8:00 and stopped, the shot clock reset, a running timeout ends. The current period is lit.
21	Shoot-Out	Starts the penalty shoot-out (tool tip *Penalty Shoot-Out*; the clock cannot run during it, the boards show PEN). A row with ● **Shoot-Out Goal**, ○ **Shoot-Out Miss** and the marks per team appears above the panel; when one team can no longer be caught the match is won. Click Shoot-Out again to end the shoot-out.
22	Set Clock	Opens *Set Clock* (see below), the same as double-clicking the clock.
23	Player Panels	Switches the St game screen between the board with and without the player lists of both teams (lit = with).
24	Undo	Takes back the last action.

#	Control	What it does
25	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.
26	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce, Timeout for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
27	**New Match**	Resets score, clock, penalties, fouls and timeouts after a confirmation; teams and team lists stay.
28	**Sport · discipline** ▾	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
29	**Time Settings**	Opens the period, timeout, shot clock and penalty times of this discipline (see *Time Settings* below). A ***** after the name means the times differ from the defaults.

Players and the Number Box

Goals, fouls and penalties can be credited to a player. Without a team list just type the number into the number box under the penalty buttons; with a team list (Teams page) click the chevron under the box and pick the player.

1. Type the number, e.g. `7` (up to three characters), or pick it from the list.
2. Click the action of that team: ↑ for a goal, the foul number or ▲ for a foul, or a penalty button.
3. The goal or penalty is stored with the player, shown in the player panels and the penalty row, and the box clears for the next action.

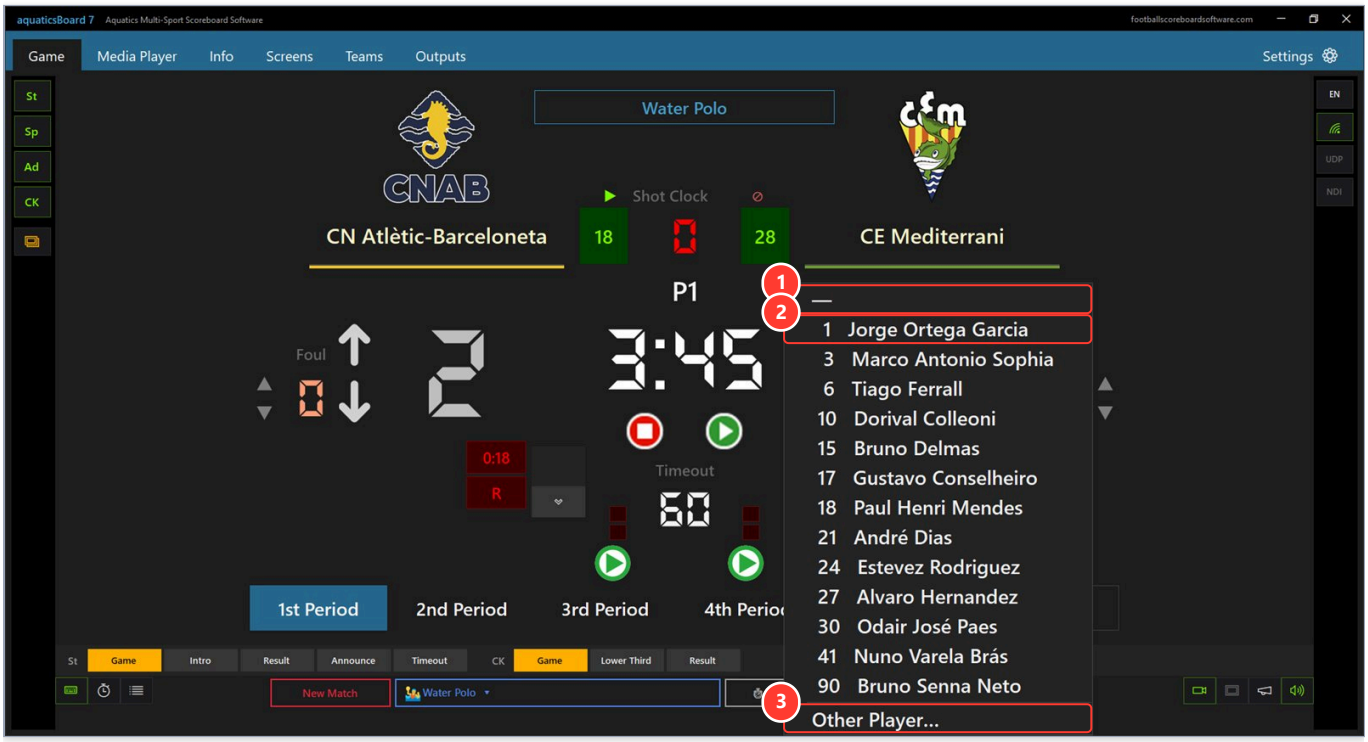


Figure 210. The player list of the home team (chevron under the number box)

#	Control	What it does
1	**—**	Clears the number box: the next action counts for the team only.
2	**Players (number · name)**	The players of the team list marked **Show** on the Teams page, by number. A click puts the number into the box.
3	**Other Player...**	Opens *Other Player...* for a player who is not in the list.



Figure 211. Other Player...

#	Control	What it does
1	**Number and name**	Type the number and the name, e.g. `17 John Smith`. A number alone only fills the box; with a name the player is also added to the team list.
2	**OK**	Puts the number into the number box.
3	**Cancel**	Closes without a change.

Set Clock

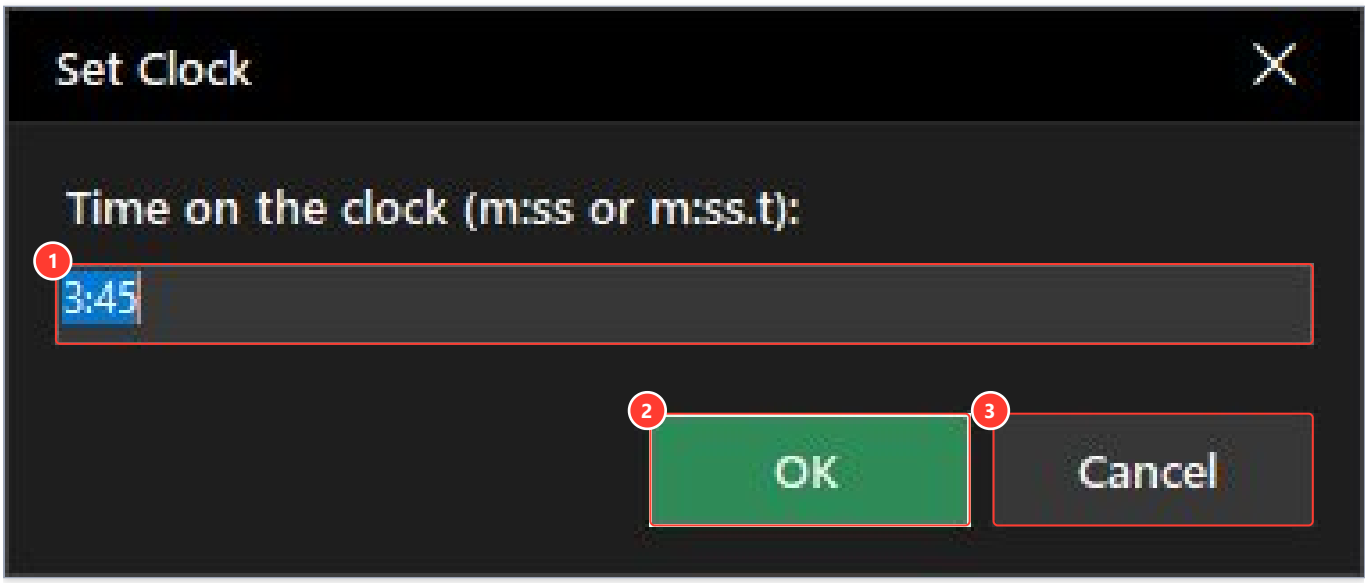


Figure 212. Set Clock (Set Clock button, or a double click on the game clock)

#	Control	What it does
1	**Time on the clock (m:ss or m:ss.t)**	Type the time the clock must show, e.g. `4:12` or `0:47.5`. The clock keeps its running state.
2	**OK**	Sets the clock; the boards and the remote follow at once.
3	**Cancel**	Leaves the clock as it is.

Time Settings

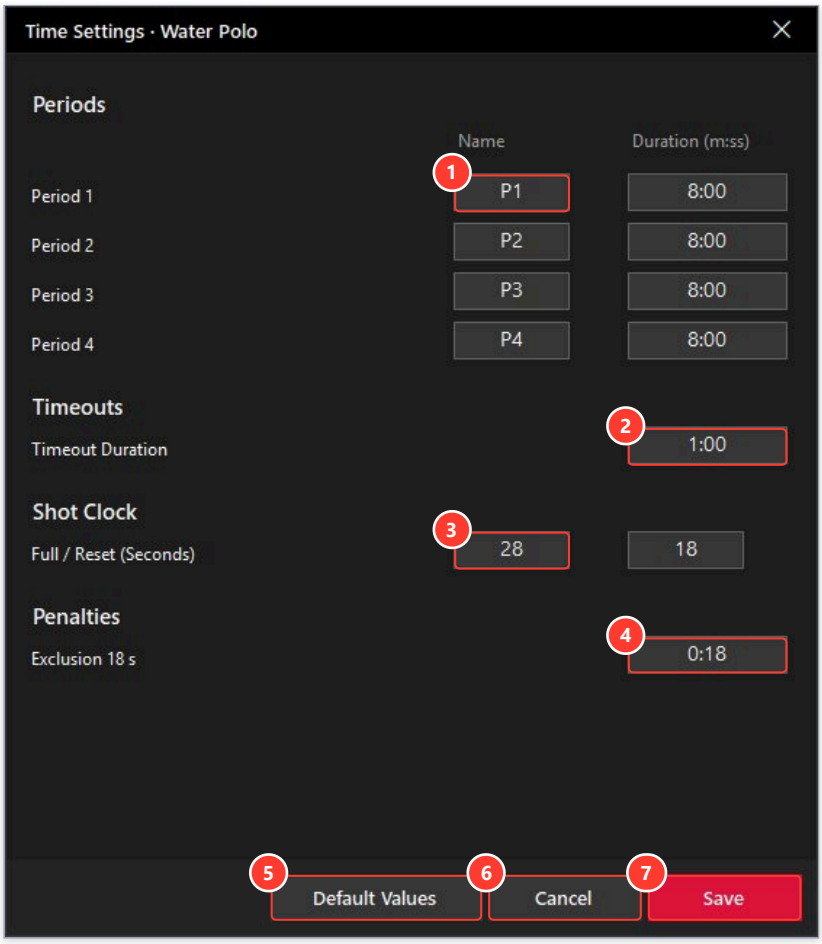


Figure 213. Time Settings of water polo

#	Control	What it does
1	**Periods: Name · Duration**	Name (P1 … P4) and length (m:ss) of each period.
2	**Timeout Duration**	Length of a team timeout.
3	**Shot Clock: Full / Reset**	The two shot clock buttons, in seconds (28 / 18).
4	**Penalties: Exclusion 18 s**	Length of an exclusion.
5	**Default Values**	Puts the factory values of the discipline back into the window (after a confirmation).
6	**Cancel**	Closes without saving.
7	**Save**	Saves the times for this discipline; they apply to the next match (see *When the New Times Apply*). **Time Settings *** on the Game page then shows that the times differ from the defaults.

The Info Page of Water Polo

The Info page shows only the rows the water polo designs can show (picture: *The Info Page of Each Sport*; the player list ▾ and the penalty and card lists: *The Player List (▾)* and *Score Type, Card and Sanction Lists*). The rows that belong to water polo:

Row	What it puts on air
Goal	Team, scorer and game time → Goal screen (St) and Player lower third (CK).

Row	What it puts on air
Exclusion 18 s	Team, player and the penalty choice (Exclusion 18 s) → Card screen.
Cards	Team, player and the card (Red Card) → Card screen.
Red Card (tally)	The red cards of each team: click a ○ to set the number of cards shown under the team name on the board (0–4).
Player Intro · Substitution · Multiple Substitution	Present a player, one substitution or up to five pairs.
Team Lists · Officials	Team list (Slide = player by player), Show Pictures, the officials.
Info Screens	Intro, Result, Announce and **Timeout**.

> **Tip** The time penalty row offers one choice: Exclusion 18 s.

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the water polo panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Start / Stop	F1
Next Period	F2
+1 Goal home / guest	Num 7 / Num 9
−1 Goal home / guest	Num 0 / Num ,
Foul +1 home / guest	F7 / F9
Foul −1 home / guest	F8 / F10
Timeout home / guest	F5 / F6
End Timeout	Num 5
Shot Clock 28 / 18	F3 / F4
Undo	F12
Horn	Num 2
Shoot-out and penalty commands	none – assign the keys you need (Set Clock is not in the list: it needs a typed time)

The Water Polo Boards

The St board shows logos, the game clock, the shot clock in red, the score, the period, the exclusions of each team, the timeouts left as dots, time of day and date. With **Player Panels** on, the cap numbers and names of both teams are listed with their goals.



Figure 214. St – the game screen



Figure 215. St – with player panels (Player Panels on)

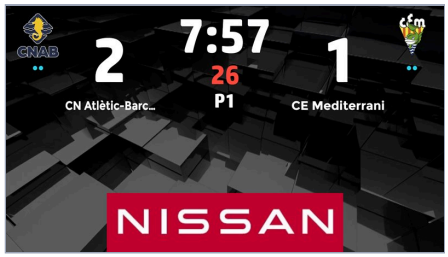


Figure 216. Sp – with the sponsor area



Figure 217. Ad – beside the advert

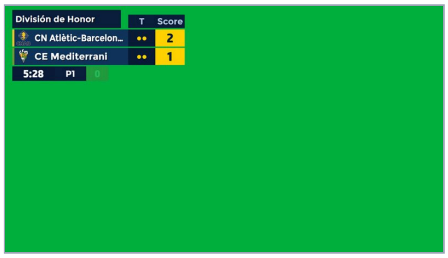


Figure 218. CK – score bug for broadcast

Every other screen of water polo — one sentence each on what it shows and how you put it on air:

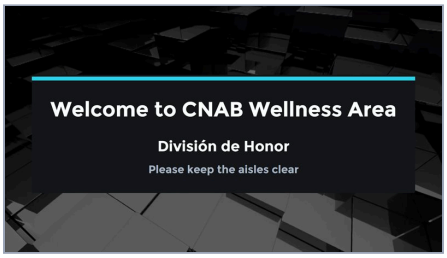


Figure 219. St Announce – a title and up to three lines (welcome, next match, safety notes); a long title wraps to a second line – Show in the Announce row of the Info page, or Announce in the St row.

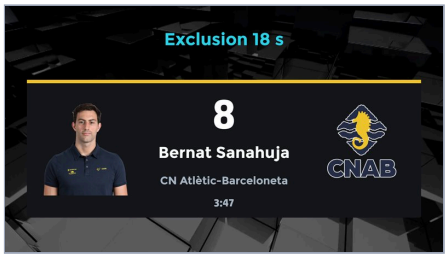


Figure 220. St Card – the player with number, photo and team under the name of the sport's own penalty or card (e.g. Exclusion 18 s, 2 Minutes, Red Card) and the game time – the Cards row (or the time penalty row) of the Info page, Show.



Figure 221. St Goal – the scorer with number, photo, team and the new score – choose team and player in the Goal row of the Info page and click Show or Show With Picture.



Figure 222. St Intro – the event, both teams with logos, venue, date and time – before the start; Intro in the St on-air row, on the Screens page or under Info Screens on the Info page.

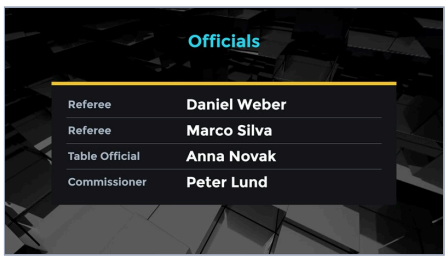


Figure 223. St Officials – referees and table officials – type them in the Officials row of the Info page and click Show.

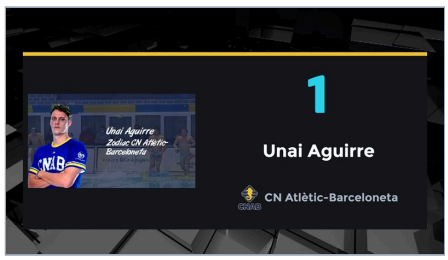


Figure 224. St Player Intro – one player with photo, number and team – the Player Intro row of the Info page, or Slide in the Team Lists row to present the whole team one by one.



Figure 225. St Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

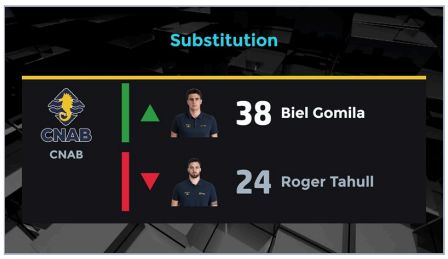


Figure 226. St Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

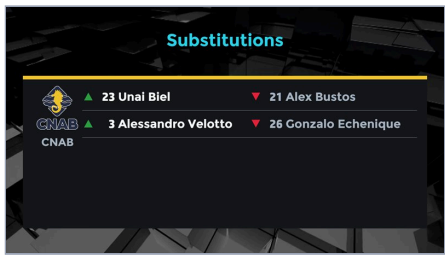


Figure 227. St Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 228. St Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.



Figure 229. St Timeout – the logo and name of the team that called the timeout, the countdown and the score – click Timeout in the St row when a team takes a timeout (it is not put on air by itself).

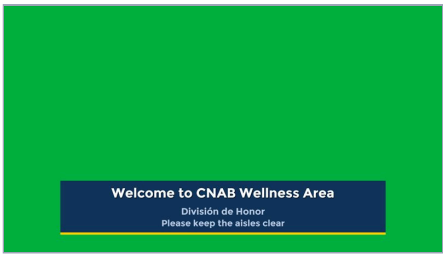


Figure 230. CK Lower Third – the announcement title and the first two lines as a lower third – Announce row of the Info page, or Lower Third in the CK row.



Figure 231. CK Officials – referees and table officials – type them in the Officials row of the Info page and click Show.

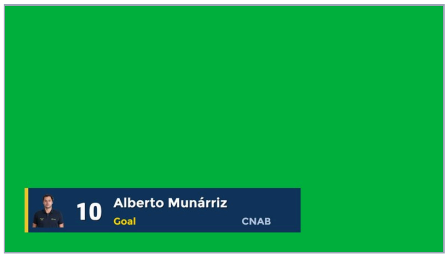


Figure 232. CK Player – goal, card or player intro as a lower third – the same Info page rows as the St screens when CK is ticked under Show On.

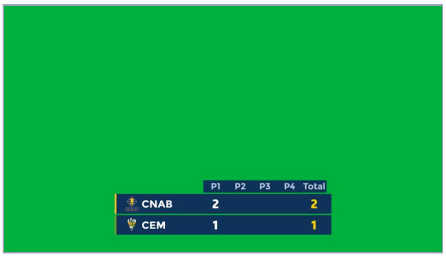


Figure 233. CK Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).



Figure 234. CK Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

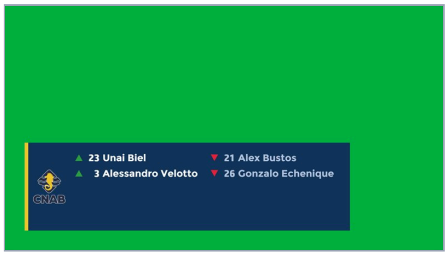


Figure 235. CK Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 236. CK Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

Remote Control (Water Polo)

Sign in on a phone or tablet as described in *Remote Control*. The title bar shows aquaticsBoard 7 and the sport; the buttons carry the names of the desktop in its language. The remote builds its buttons from the commands of the Water Polo panel: one column per team (two buttons per row; a long name wraps to two lines), the shared Match buttons and Match Control — on a tablet the two team columns stand side by side next to Match. Every tap is sent to aquaticsBoard 7 at once; the score card follows the desk within a fraction of a second.

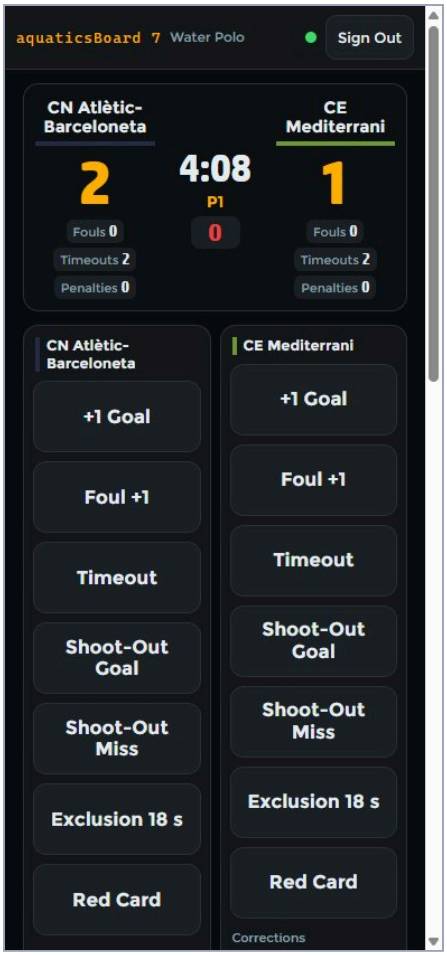


Figure 237. Phone – score card and the home team buttons

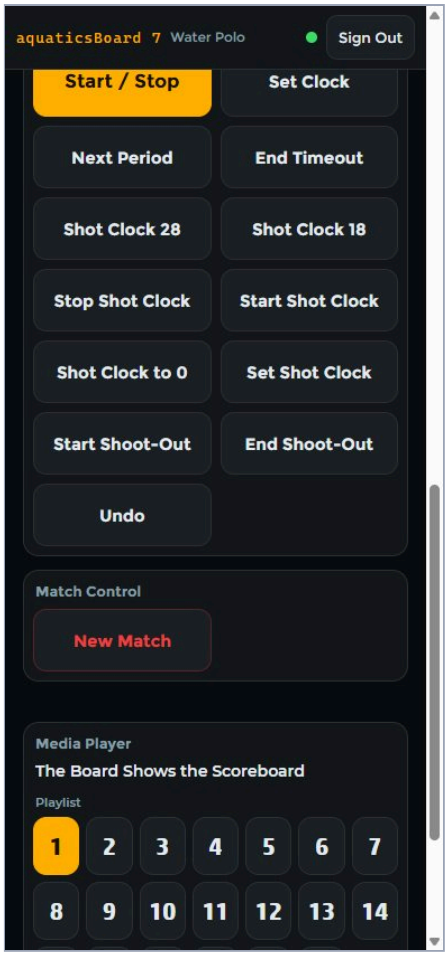


Figure 238. Phone – corrections, Match and Match Control further down

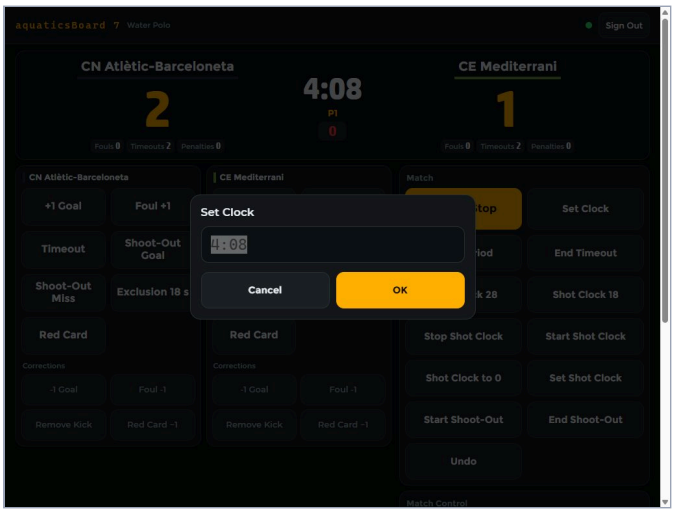


Figure 239. Tablet – Set Clock sheet over the panel

Button	Where	What it does
+1 Goal	team column	A goal for that team (the same as ↑ on the panel, without a player number).
Foul +1	team column	A team foul.
Timeout	team column	Takes a timeout for the team: the clock stops and the countdown runs.
Shoot-Out Goal / Shoot-Out Miss	team column	Records a penalty of the shoot-out for the team (after Start Shoot-Out).

Button	Where	What it does
Exclusion 18 s	team column	Starts an exclusion for the team.
Red Card	team column	Adds a red card to the team's tally.
Corrections: −1 Goal, Foul −1, Remove Kick, Red Card −1	team column, small buttons	Take back a goal, a foul, the last shoot-out kick or a red card of that team.
Start / Stop	Match	Starts or stops the game clock (amber, the biggest button).
Set Clock	Match	Opens a sheet with the clock time (mm:ss) filled in; type the new time and tap OK.
Next Period	Match	Goes on to the next period (the same as the next period button of the panel).
End Timeout	Match	Ends the running timeout early.
Shot Clock 28	Match	Resets the shot clock to that value.
Shot Clock 18	Match	Resets the shot clock to that value.
Stop Shot Clock	Match	Holds the shot clock while the game clock runs on.
Shot Clock to 0	Match	Sets the shot clock to 0 and stops it, without the buzzer (the ∅ button of the panel).
Set Shot Clock	Match	Opens a sheet with the shot clock filled in; type the seconds (e.g. 7 or 4.5) and tap OK.
Start Shoot-Out / End Shoot-Out	Match	Starts and ends the penalty shoot-out (the Shoot-Out button of the panel).
Undo	Match	Takes back the last action.
New Match	Match Control	Starts a new match. The remote asks *New Match? This cannot be undone from the remote.* – Yes / No.
Score card	top	Team names with colour, score, game clock (green while running), period, shot clock in red and the chips Fouls, Timeouts (left), Penalties (the number of running timed penalties).
● / Sign Out	title bar	The dot is green while the remote is connected; Sign Out ends the session after a Yes.

> **Note** A penalty sent from the remote is booked for the team without a player number. When a command is refused (e.g. Start at 0:00) the reason appears for a few seconds at the bottom of the remote.

Water Polo Scenarios

1. Type `5` into the home number box (or pick 5 from the list) and click **0:18**. The penalty row shows 5 with its time; the board shows the exclusion.
2. Click **18** for the shot clock as the referee awards it, then **Start**.
3. The guest team scores: click the guest ↑. The clock stops, the shot clock goes back to 28 and every running exclusion ends at once.
4. If an excluded player returns early for another reason, click the red ✕ on his row.

5. To show the scorer: on the Info page choose the guest team and the scorer in the Goal row and click **Show With Picture**.
6. Restart with **Start**.

1. Click the guest ▶ under the timeout lamps. The clock stops, the 60-second countdown runs and one guest lamp turns red.
2. Click **Timeout** in the St on-air row to show the Timeout screen.
3. When play resumes, click **Start**; the timeout ends. Click **Game** in the St row.
4. At 0:00 the clock stops by itself. Click **3rd Period** to load 8:00 for the next period and show **Result** during the break.

1. Click **Shoot-Out**. The shoot-out row appears above the panel.
2. Record each penalty with ● **Shoot-Out Goal** or ○ **Shoot-Out Miss** for the shooting team (or from the remote).
3. When one team can no longer be caught the shoot-out is decided; click **Shoot-Out** again to end it and show **Result**.

23 Canoe Polo

Canoe polo follows the ICF rules as set in the preset **Canoe Polo**:

Rule	As implemented
Periods	2 × 10:00 (H1, H2), countdown
Overtime	ET1, ET2 … of 5:00, golden goal (a goal in extra time stops the clock and wins)
Goal	stops the clock, resets the shot clock to 60, ends the oldest running suspension of the conceding team when it plays short
Shot clock	60 s (one button), runs with the game clock
Suspensions	2 minutes; green card 2:00, yellow card 2:00, red card 2:00 (not ended by a goal); up to two run at the same time per team
Ejection Red Card	a tally (no time), the **ER** button
Timeouts	none
Draw	penalty shoot-out (Shoot-Out button, PEN on the boards) of 5

The Canoe Polo Panel



Figure 240. The canoe polo panel

#	Control	What it does
1	**Discipline**	The discipline. Click it to open the sport picker.
2	**Team name (home / guest)**	Type the team name here; Enter or leaving the box saves it. Logo and colour stripe come from the Teams page.

#	Control	What it does
3	**Score**	The goals of the team (the guest's on the right).
4	**↑ / ↓ (score)**	↑ adds a goal (credited to the player in the number box), ↓ takes one back. A goal stops the game clock and resets the shot clock.
5	**2 / G2 / Y2 / R2 / ER (penalty buttons)**	**2** a 2-minute suspension, **G2** green card, **Y2** yellow card, **R2** red card — each runs 2:00 for the player in the number box. A goal of the other team ends the oldest running one (except the red card). **ER** records an ejection red card (tally, no time); **right-click ER** takes one back.
6	**Player number box**	Type the cap / shirt number before a goal, foul or penalty, or pick it from the list below. The next action of the team is credited to that player and the box clears. Empty = the team only.
7	**Player list** ▾	Opens the team list (see *Players and the Number Box* below).
8	**Running penalties**	Up to 2 penalties of the team: player, remaining time and a red ✕ that removes exactly the penalty of that row. Penalty time only runs while the game clock runs.
9	**Game clock**	Counts down the period (tenths below one minute); green while running. **Double-click** it to set the time (m:ss or m:ss.t).
10	**Stop**	Stops the game clock (and with it the shot clock and the penalties).
11	**Start**	Starts the game clock; a running timeout ends. Refused at 0:00 — choose the next period first.
12	**Shot clock**	The shot clock (tenths from 5 s). It runs with the game clock. Click the digits to let it run again after it was stopped; **double-click** them to type a value from 0 to 60 (e.g. 7 or 4.5) – the double-click does not start it.
13	**60 (full)**	Resets the shot clock to 60 seconds (new possession). A goal does this by itself.
14	**⊘ Shot Clock to 0**	Sets the shot clock to 0 and stops it, without the shot-clock buzzer; the boards show 0 until you reset it.
15	**First Half / Second Half**	Starts that half: 10:00, clock stopped, shot clock reset.
16	**Extra Time - 1**	Starts the first period of extra time (5:00, golden goal; the boards show ET1). In extra time the button reads *Extra Time - 2*, *Extra Time - 3* …: a click goes on to that period.
17	**Shoot-Out**	Starts the penalty shoot-out (tool tip *Penalty Shoot-Out*; the clock cannot run during it, the boards show PEN). A row with ● **Shoot-Out Goal**, ○ **Shoot-Out Miss** and the marks per team appears above the panel; when one team can no longer be caught the match is won. Click Shoot-Out again to end the shoot-out.
18	**Set Clock**	Opens *Set Clock* (see below), the same as double-clicking the clock.
19	**Player Panels**	Switches the St game screen between the board with and without the player lists of both teams (lit = with).
20	**Undo**	Takes back the last action.
21	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.
22	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
23	**New Match**	Resets score, clock, penalties, fouls and timeouts after a confirmation; teams and team lists stay.

#	Control	What it does
24	**Sport · discipline** ▾	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
25	**Time Settings**	Opens the period, timeout, shot clock and penalty times of this discipline (see *Time Settings* below). A ***** after the name means the times differ from the defaults.

Players and the Number Box

Goals and penalties can be credited to a player. Without a team list just type the number into the number box under the penalty buttons; with a team list (Teams page) click the chevron under the box and pick the player.

1. Type the number, e.g. `7` (up to three characters), or pick it from the list.
2. Click the action of that team: ↑ for a goal, or a penalty button.
3. The goal or penalty is stored with the player, shown in the player panels and the penalty row, and the box clears for the next action.



Figure 241. The player list of the home team (chevron under the number box)

#	Control	What it does
1	—	Clears the number box: the next action counts for the team only.
2	**Players (number · name)**	The players of the team list marked **Show** on the Teams page, by number. A click puts the number into the box.
3	**Other Player...**	Opens *Other Player...* for a player who is not in the list.



Figure 242. Other Player...

#	Control	What it does
1	**Number and name**	Type the number and the name, e.g. `17 John Smith`. A number alone only fills the box; with a name the player is also added to the team list.
2	**OK**	Puts the number into the number box.
3	**Cancel**	Closes without a change.

Set Clock

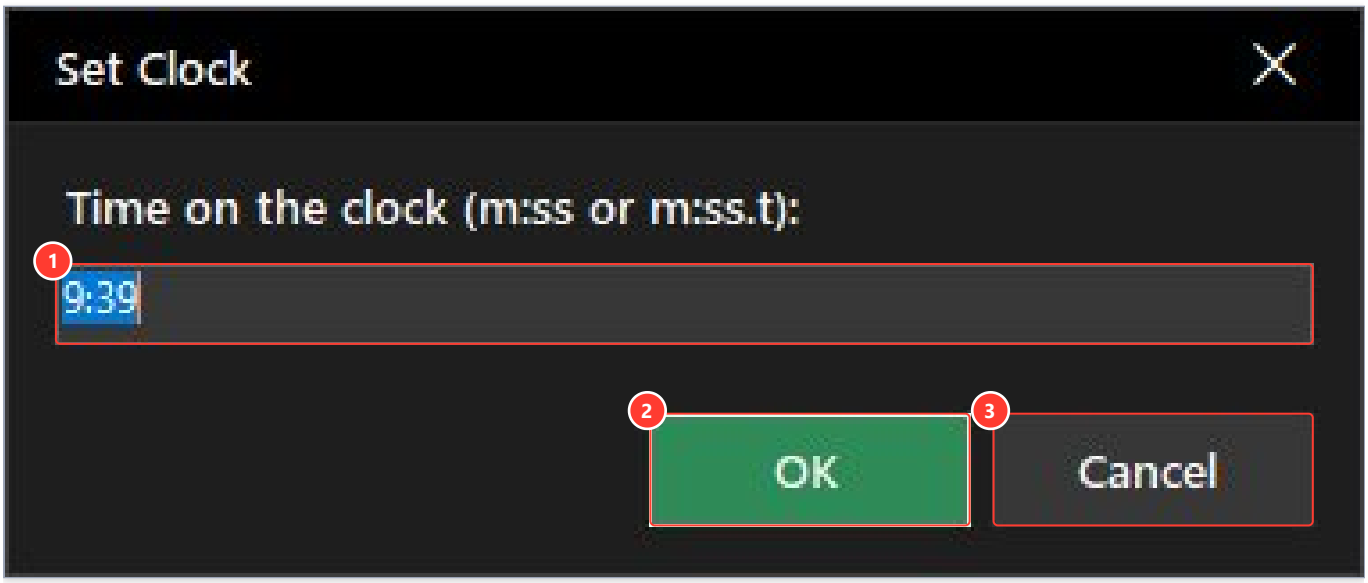


Figure 243. Set Clock (Set Clock button, or a double click on the game clock)

#	Control	What it does
1	**Time on the clock (m:ss or m:ss.t)**	Type the time the clock must show, e.g. `4:12` or `0:47.5`. The clock keeps its running state.
2	**OK**	Sets the clock; the boards and the remote follow at once.
3	**Cancel**	Leaves the clock as it is.

Time Settings

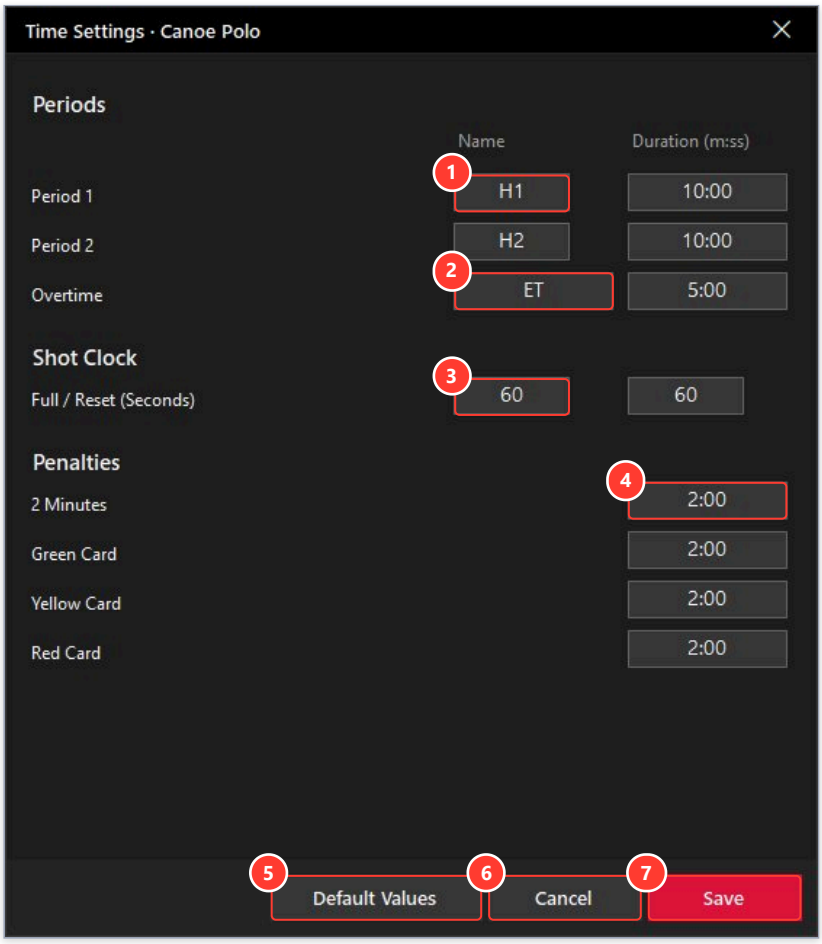


Figure 244. Time Settings of canoe polo

#	Control	What it does
1	**Periods: Name · Duration**	Name and length of both halves.
2	**Overtime**	Name of the extra periods (ET; the number is added: ET1, ET2 …) and their length.
3	**Shot Clock: Full / Reset**	Shot clock length in seconds (both 60: the panel, the remote and the shortcut list show only one Shot Clock 60).
4	**Penalties**	Lengths of the 2-minute suspension and the green, yellow and red cards.
5	**Default Values**	Puts the factory values of the discipline back into the window (after a confirmation).
6	**Cancel**	Closes without saving.
7	**Save**	Saves the times for this discipline; they apply to the next match (see *When the New Times Apply*). **Time Settings** * on the Game page then shows that the times differ from the defaults.

The Info Page of Canoe Polo

The Info page shows only the rows the canoe polo designs can show (picture: *The Info Page of Each Sport*; the player list ▾ and the penalty and card lists: *The Player List (▾)* and *Score Type, Card and Sanction Lists*). The rows that belong to canoe polo:

Row	What it puts on air
Goal	Team, scorer and game time → Goal screen (St) and Player lower third (CK).
2 Minutes	Team, player and the suspension → Card screen.
Cards	Team, player and the card (Green, Yellow, Red, Ejection Red Card) → Card screen.
Player Intro · Substitution · Multiple Substitution	Present a player, one substitution or up to five pairs.
Team Lists · Officials	Team list (Slide = player by player), the officials.
Info Screens	Intro, Result and Announce (canoe polo has no timeouts, so no Timeout screen).

> **Tip** The time penalty row offers 2 Minutes; the green, yellow, red and ejection red cards are chosen in the Cards row.

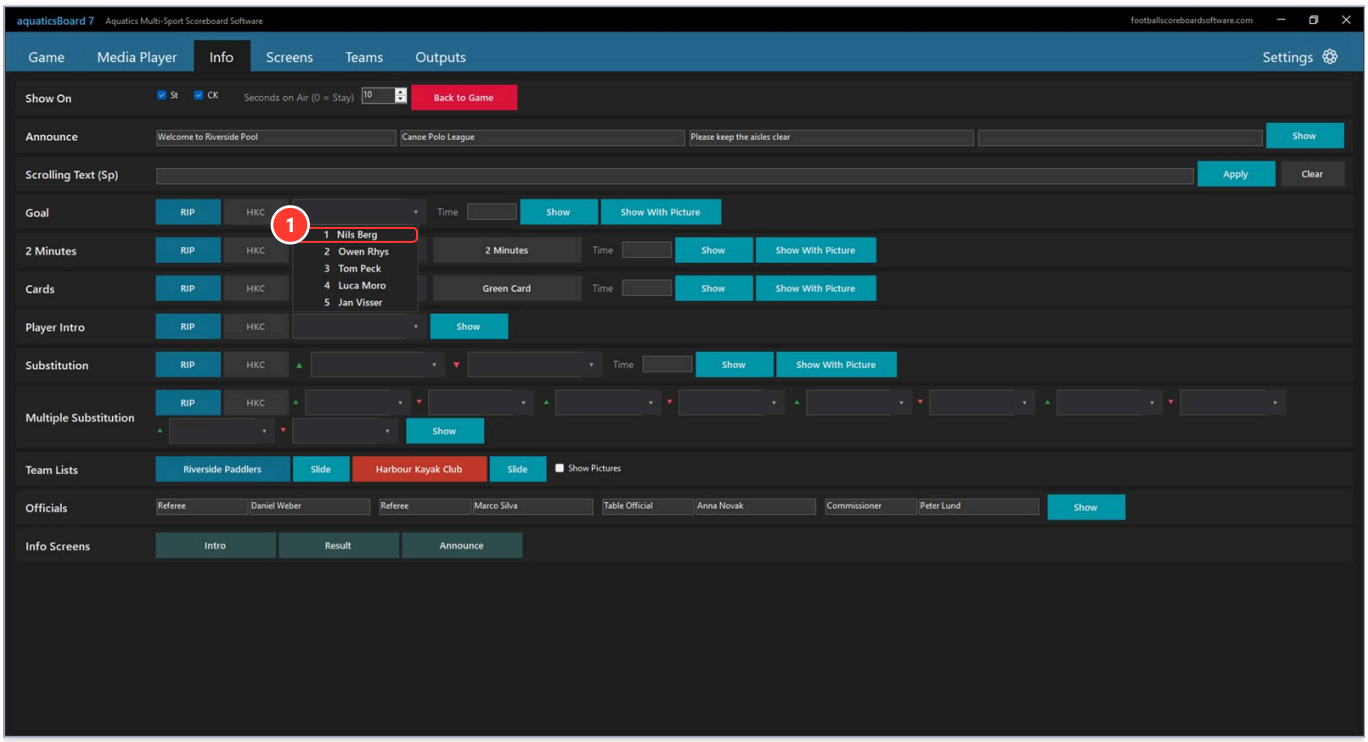


Figure 245. The player list of the Goal row (home team)

#	Control	What it does
1	**Players (number · name)**	The players of the chosen team by number. The choice fills the row; **Show** or **Show With Picture** puts the graphic on air for the Seconds on Air.

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the canoe polo panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Start / Stop	F1
Next Period	F2
+1 Goal home / guest	Num 7 / Num 9
−1 Goal home / guest	Num 0 / Num ,
Shot Clock 60	F3
Undo	F12
Horn	Num 2
Shoot-out and penalty commands	none – assign the keys you need (Set Clock is not in the list: it needs a typed time)

The Canoe Polo Boards

The St board shows logos, the game clock, the shot clock in red, the score, the half and the running suspensions; with Player Panels on both team lists are added. While a suspension runs, the Ad board shows *2 Min* with the number of running suspensions per team; with none running the heading and the counts are hidden.



Figure 246. St – the game screen with shot clock



Figure 247. St – with player panels



Figure 248. Sp – with the sponsor area

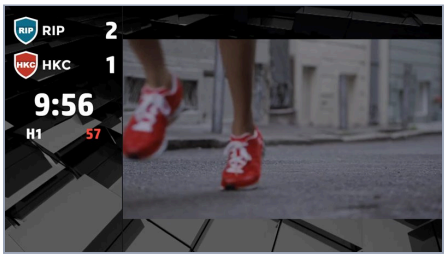


Figure 249. Ad – beside the advert (the suspension count appears only while one runs)

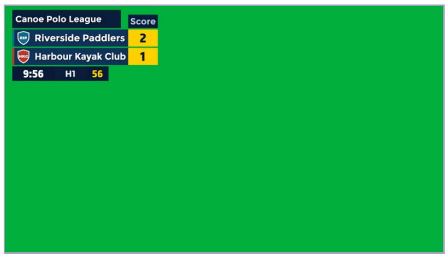


Figure 250. CK – score bug with the event, clock, half and shot clock

Every other screen of canoe polo — one sentence each on what it shows and how you put it on air:

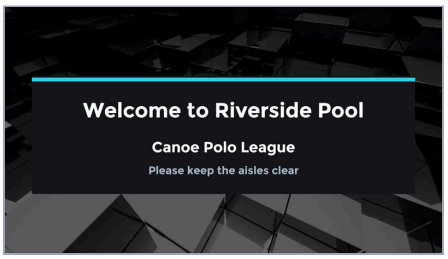


Figure 251. St Announce – a title and up to three lines (welcome, next match, safety notes); a long title wraps to a second line – Show in the Announce row of the Info page, or Announce in the St row.

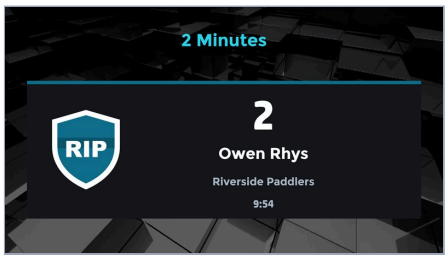


Figure 252. St Card – the player with number, photo and team under the name of the sport's own penalty or card (e.g. Exclusion 18 s, 2 Minutes, Red Card) and the game time – the Cards row (or the time penalty row) of the Info page, Show.

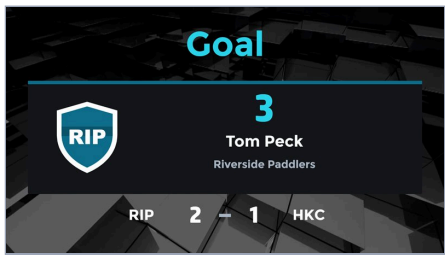


Figure 253. St Goal – the scorer with number, photo, team and the new score – choose team and player in the Goal row of the Info page and click Show or Show With Picture.



Figure 254. St Intro – the event, both teams with logos, venue, date and time – before the start; Intro in the St on-air row, on the Screens page or under Info Screens on the Info page.

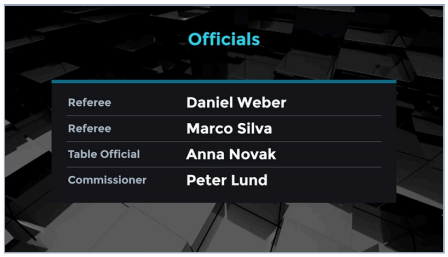


Figure 255. St Officials – referees and table officials – type them in the Officials row of the Info page and click Show.

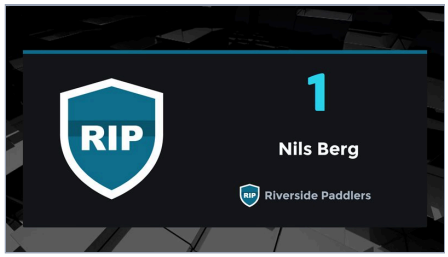


Figure 256. St Player Intro – one player with photo, number and team – the Player Intro row of the Info page, or Slide in the Team Lists row to present the whole team one by one.

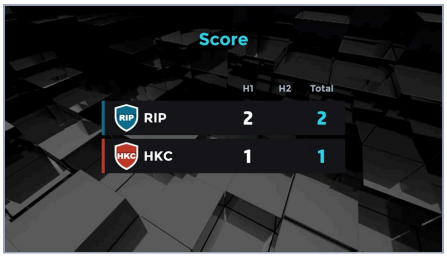


Figure 257. St Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

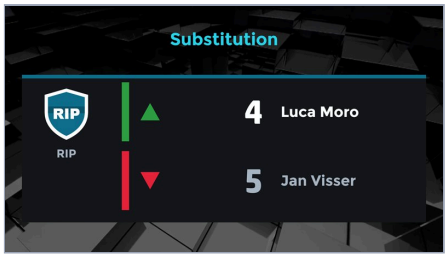


Figure 258. St Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

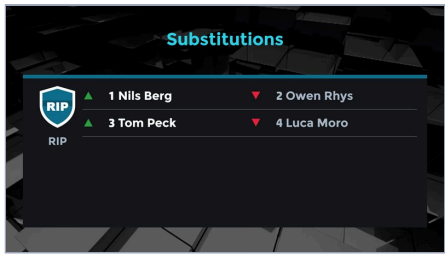


Figure 259. St Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.

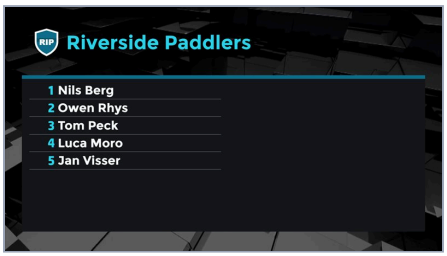


Figure 260. St Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

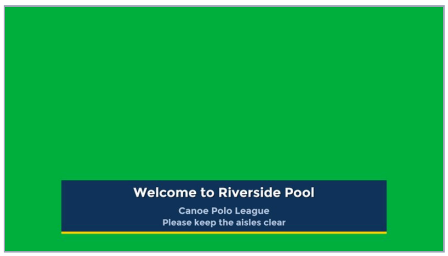


Figure 261. CK Lower Third – the announcement title and the first two lines as a lower third – Announce row of the Info page, or Lower Third in the CK row.



Figure 262. CK Officials – referees and table officials – type them in the Officials row of the Info page and click Show.

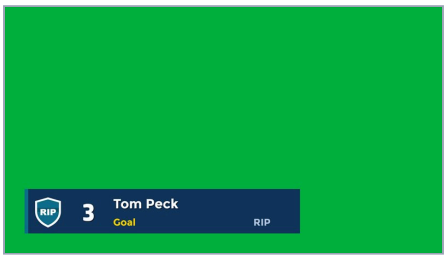


Figure 263. CK Player – goal, card or player intro as a lower third – the same Info page rows as the St screens when CK is ticked under Show On.

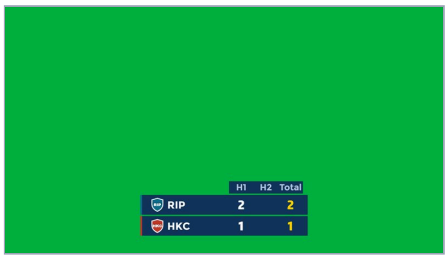


Figure 264. CK Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

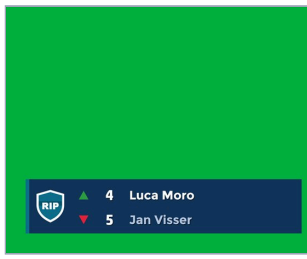


Figure 265. CK Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

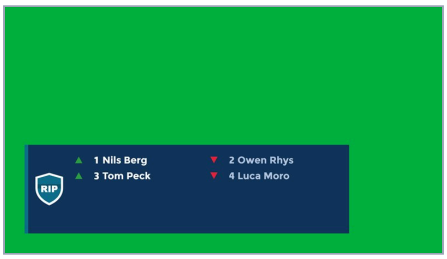


Figure 266. CK Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 267. CK Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

Remote Control (Canoe Polo)

Sign in on a phone or tablet as described in *Remote Control*. The title bar shows aquaticsBoard 7 and the sport; the buttons carry the names of the desktop in its language. The remote builds its buttons from the commands of the Canoe Polo panel: one column per team (two buttons per row; a long name wraps to two lines), the shared Match buttons and Match Control — on a tablet the two team columns stand side by side next to Match. Every tap is sent to aquaticsBoard 7 at once; the score card follows the desk within a fraction of a second.

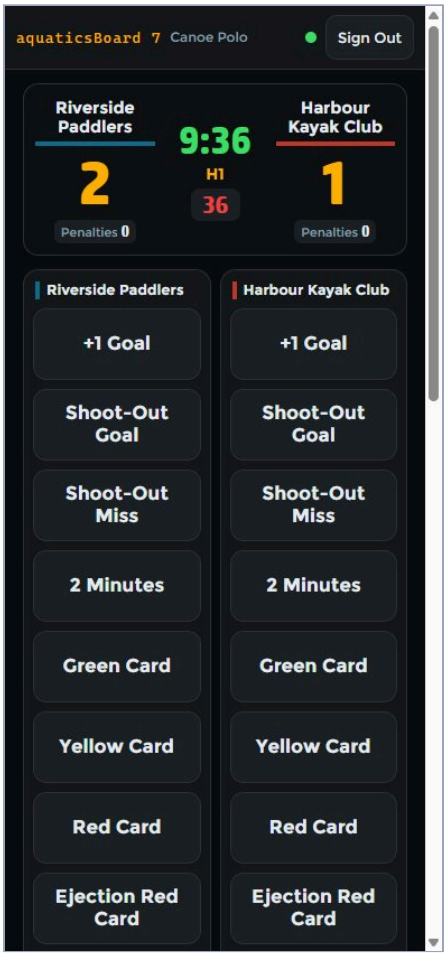


Figure 268. Phone – score card and the home team buttons

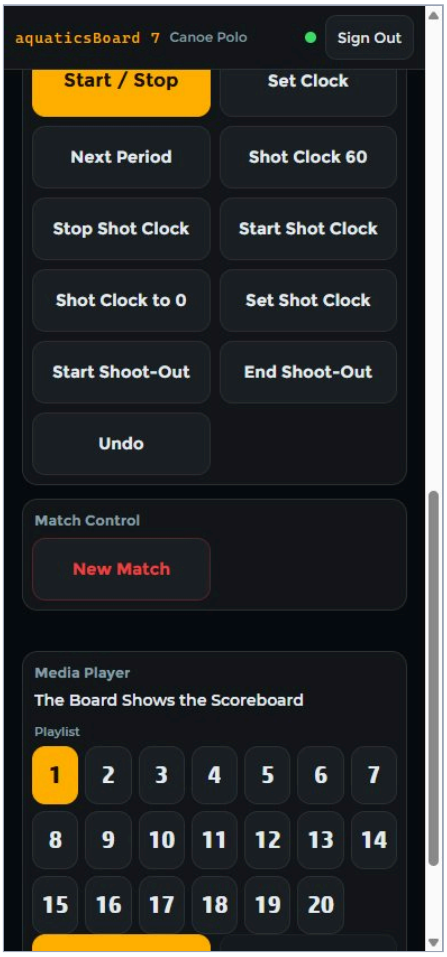


Figure 269. Phone – corrections, Match and Match Control further down

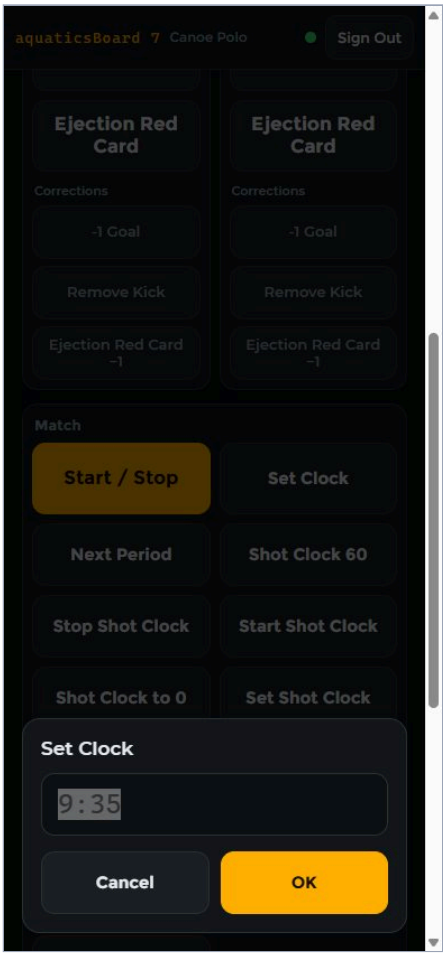


Figure 270. Phone – the Set Clock sheet

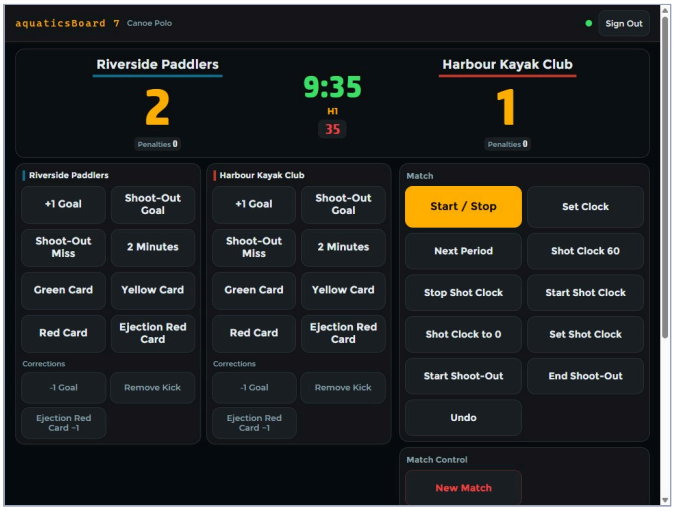


Figure 271. Tablet – both teams and the Match buttons side by side

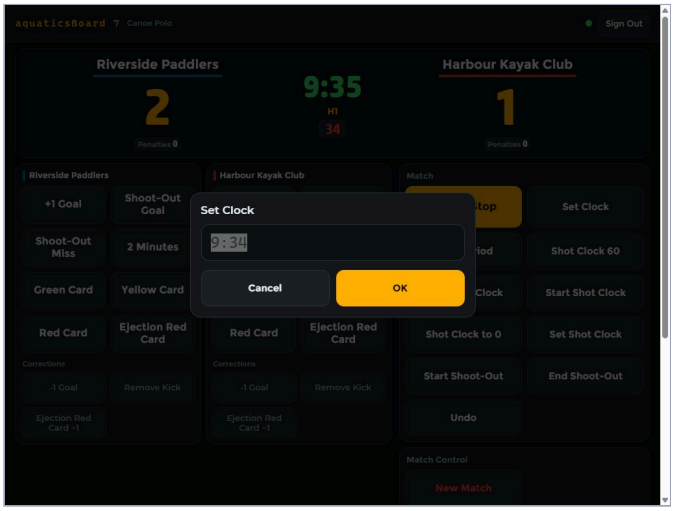


Figure 272. Tablet – Set Clock sheet over the panel

Button	Where	What it does
+1 Goal	team column	A goal for that team (the same as ↑ on the panel, without a player number).
Shoot-Out Goal / Shoot-Out Miss	team column	Records a penalty of the shoot-out for the team (after Start Shoot-Out).
2 Minutes · Green Card · Yellow Card · Red Card	team column	Starts that 2-minute suspension for the team.
Ejection Red Card	team column	Adds an ejection to the team's tally.
Corrections: −1 Goal, Remove Kick, Ejection Red Card −1	team column, small buttons	Take back a goal, the last shoot-out kick or a ejection red card of that team.
Start / Stop	Match	Starts or stops the game clock (amber, the biggest button).
Set Clock	Match	Opens a sheet with the clock time (mm:ss) filled in; type the new time and tap OK.
Next Period	Match	Goes on to the next period (the same as the next period button of the panel).
Shot Clock 60 (one button: full and reset are both 60)	Match	Resets the shot clock to that value.
Stop Shot Clock	Match	Holds the shot clock while the game clock runs on.
Shot Clock to 0	Match	Sets the shot clock to 0 and stops it, without the buzzer (the ∅ button of the panel).
Set Shot Clock	Match	Opens a sheet with the shot clock filled in; type the seconds (e.g. 7 or 4.5) and tap OK.
Start Shoot-Out / End Shoot-Out	Match	Starts and ends the penalty shoot-out (the Shoot-Out button of the panel).
Undo	Match	Takes back the last action.
New Match	Match Control	Starts a new match. The remote asks *New Match? This cannot be undone from the remote.* – Yes / No.
Score card	top	Team names with colour, score, game clock (green while running), period, shot clock in red and the chips Penalties (the number of running timed penalties).
● / Sign Out	title bar	The dot is green while the remote is connected; Sign Out ends the session after a Yes.

> **Note** A penalty sent from the remote is booked for the team without a player number. When a command is refused (e.g. Start at 0:00) the reason appears for a few seconds at the bottom of the remote.

Canoe Polo Scenarios

1. Type the guest number into the guest number box and click **Y2**. A 2:00 row starts for that player.
2. The home team scores while the guest team is short: click the home ↑. The clock stops, the shot clock is 60 again and the guest yellow card ends.

3. The half ends level: click **Extra Time - 1**. The clock shows 5:00.
4. Click **Start**. The first goal in extra time stops the clock and decides the match.
5. Still level? Click **Shoot-Out** and record each shot with ● **Shoot-Out Goal** / ○ **Shoot-Out Miss**.

1. Enter all teams once on the Teams page; before each match pick the two teams and click **New Match**.
2. The timekeeper runs the clock with **Start / Stop** and the shot clock with **Shot Clock 60** on the phone; the desk operator books goals with numbers and the cards.
3. At half-time click **Second Half**; after the match show **Result**.

24 Underwater Rugby

Underwater rugby follows the CMAS rules as set in the preset **Underwater Rugby**:

Rule	As implemented
Periods	2 × 15:00 (H1, H2), countdown
Overtime	one sudden-death period OT of up to 15:00
Goal	stops the clock; ends the oldest running penalty of the conceding team when it plays short
Shot clock	none
Penalties	2 minutes (up to three running per team); Expulsion as a tally
Timeouts	1 per team per half, 60 s
Draw	penalty shoot-out (Shoot-Out button, PEN on the boards), 3 throws

The Underwater Rugby Panel



Figure 273. The underwater rugby panel

#	Control	What it does
1	**Discipline**	The discipline. Click it to open the sport picker.
2	**Team name (home / guest)**	Type the team name here; Enter or leaving the box saves it. Logo and colour stripe come from the Teams page.
3	**Score**	The goals of the team (the guest's on the right).
4	**↑ / ↓ (score)**	↑ adds a goal (credited to the player in the number box), ↓ takes one back. A goal stops the game clock.

#	Control	What it does
5	**2 / Expulsion (penalty buttons)**	**2** starts a 2-minute penalty for the player in the number box. **Expulsion** records an expulsion (tally); **right-click Expulsion** takes it back.
6	**Player number box**	Type the cap / shirt number before a goal, foul or penalty, or pick it from the list below. The next action of the team is credited to that player and the box clears. Empty = the team only.
7	**Player list ▾**	Opens the team list (see *Players and the Number Box* below).
8	**Running penalties**	Up to 3 penalties of the team: player, remaining time and a red ✕ that removes exactly the penalty of that row. Penalty time only runs while the game clock runs.
9	**Game clock**	Counts down the period (tenths below one minute); green while running. **Double-click** it to set the time (m:ss or m:ss.t).
10	**Stop**	Stops the game clock (and with it the shot clock and the penalties).
11	**Start**	Starts the game clock; a running timeout ends. Refused at 0:00 — choose the next period first.
12	**Timeout**	The timeout length; during a timeout the countdown (amber). Click it to end a timeout early. A timeout also ends at zero or when the game clock starts.
13	**Timeout lamps**	One lamp per timeout of this half; red = used. The timeout is available again in the second half.
14	**▶ Timeout (home / guest)**	Takes a timeout for the team: the clock stops and the countdown starts. Hidden when the team has none left.
15	**First Half / Second Half**	Starts that half (15:00, clock stopped); the timeouts of the half are given back.
16	**Overtime**	Starts the sudden-death overtime (OT on the boards); the first goal stops the clock and wins.
17	**Shoot-Out**	Starts the penalty shoot-out (tool tip *Penalty Shoot-Out*; the clock cannot run during it, the boards show PEN). A row with ● **Shoot-Out Goal**, ○ **Shoot-Out Miss** and the marks per team appears above the panel; when one team can no longer be caught the match is won. Click Shoot-Out again to end the shoot-out.
18	**Set Clock**	Opens *Set Clock* (see below), the same as double-clicking the clock.
19	**Player Panels**	Switches the St game screen between the board with and without the player lists of both teams (lit = with).
20	**Undo**	Takes back the last action.
21	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.
22	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce, Timeout for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
23	**New Match**	Resets score, clock, penalties, fouls and timeouts after a confirmation; teams and team lists stay.
24	**Sport · discipline ▾**	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
25	**Time Settings**	Opens the period, timeout, shot clock and penalty times of this discipline (see *Time Settings* below). A ***** after the name means the times differ from the defaults.

Players and the Number Box

Goals and penalties can be credited to a player. Without a team list just type the number into the number box under the penalty buttons; with a team list (Teams page) click the chevron under the box and pick the player.

1. Type the number, e.g. `7` (up to three characters), or pick it from the list.
2. Click the action of that team: ↑ for a goal, or a penalty button.
3. The goal or penalty is stored with the player, shown in the player panels and the penalty row, and the box clears for the next action.

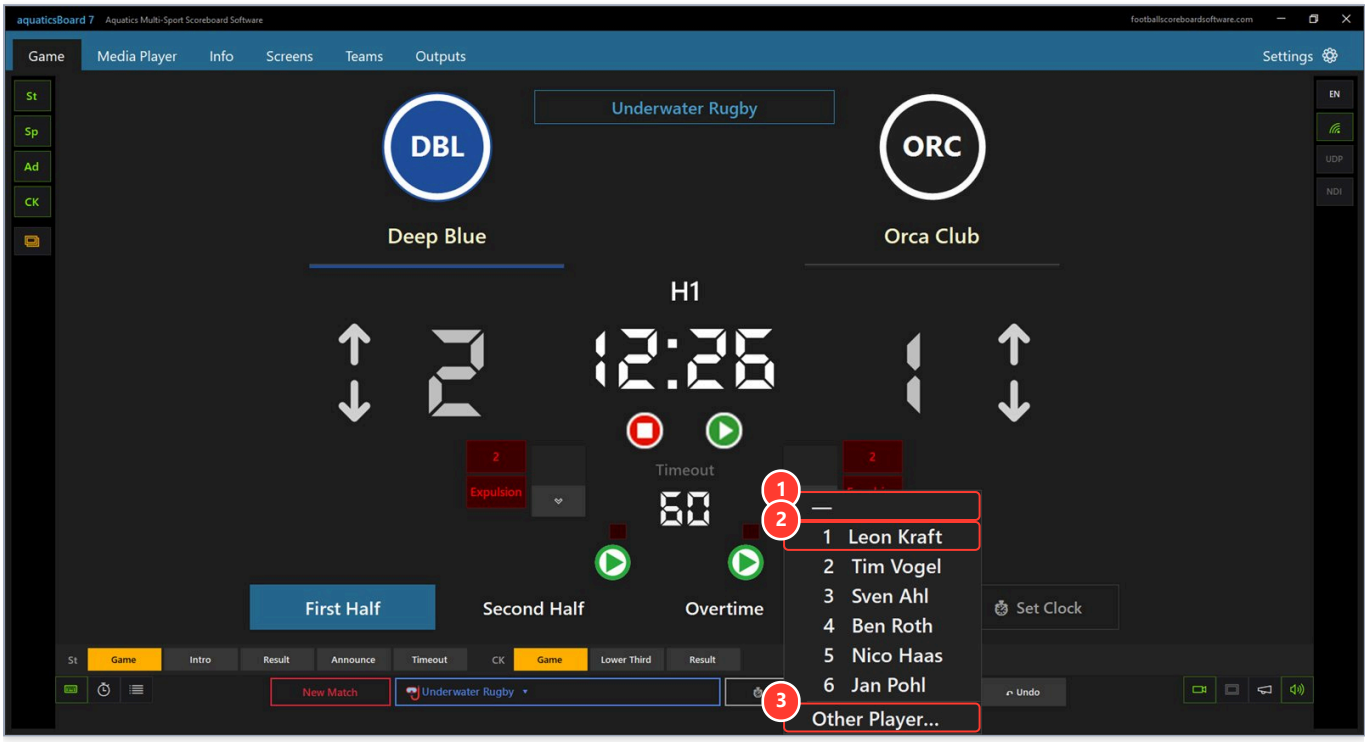


Figure 274. The player list of the home team (chevron under the number box)

#	Control	What it does
1	—	Clears the number box: the next action counts for the team only.
2	**Players (number · name)**	The players of the team list marked **Show** on the Teams page, by number. A click puts the number into the box.
3	**Other Player...**	Opens *Other Player...* for a player who is not in the list.



Figure 275. Other Player...

#	Control	What it does
1	**Number and name**	Type the number and the name, e.g. `17 John Smith`. A number alone only fills the box; with a name the player is also added to the team list.
2	**OK**	Puts the number into the number box.
3	**Cancel**	Closes without a change.

Set Clock

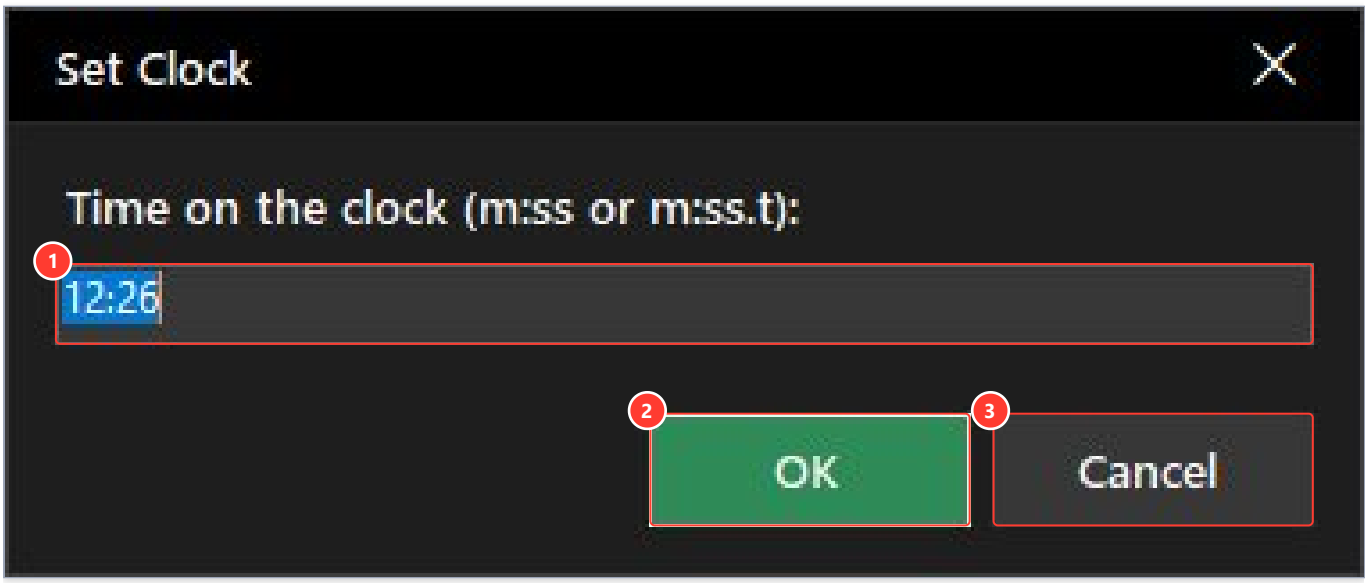


Figure 276. Set Clock (Set Clock button, or a double click on the game clock)

#	Control	What it does
1	**Time on the clock (m:ss or m:ss.t)**	Type the time the clock must show, e.g. `4:12` or `0:47.5`. The clock keeps its running state.
2	**OK**	Sets the clock; the boards and the remote follow at once.
3	**Cancel**	Leaves the clock as it is.

Time Settings

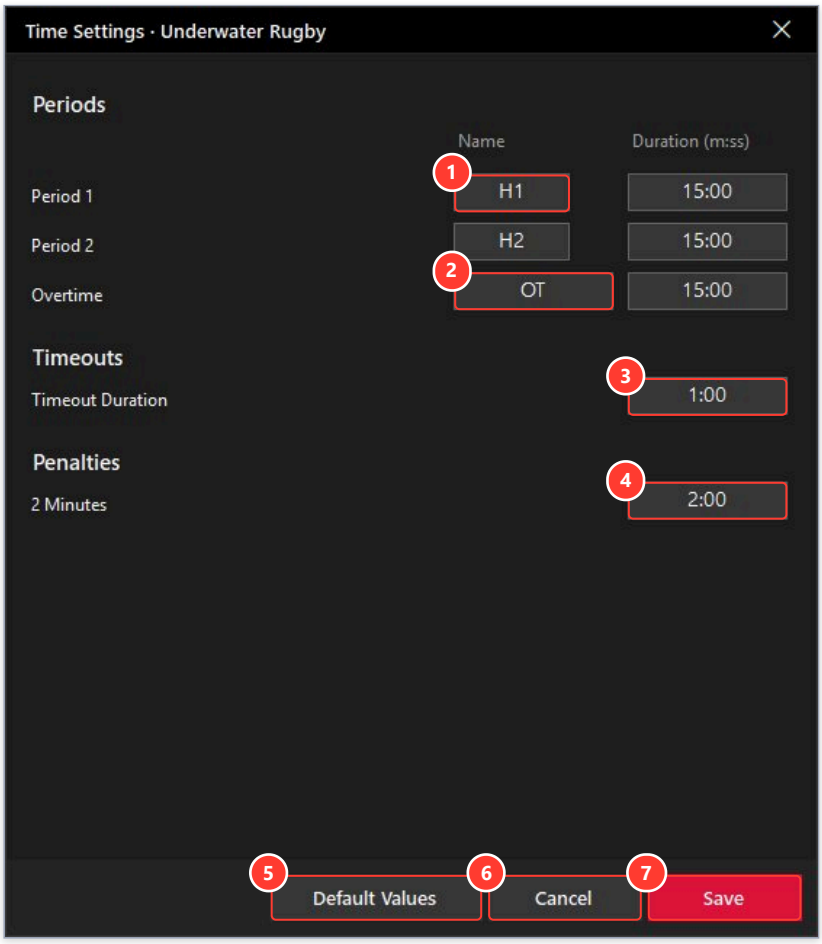


Figure 277. Time Settings of underwater rugby

#	Control	What it does
1	**Periods: Name · Duration**	Name and length of both halves.
2	**Overtime**	Name (OT) and length of the sudden-death overtime.
3	**Timeout Duration**	Length of a team timeout.
4	**Penalties: 2 Minutes**	Length of the timed penalty.
5	**Default Values**	Puts the factory values of the discipline back into the window (after a confirmation).
6	**Cancel**	Closes without saving.
7	**Save**	Saves the times for this discipline; they apply to the next match (see *When the New Times Apply*). **Time Settings *** on the Game page then shows that the times differ from the defaults.

The Info Page of Underwater Rugby

The Info page shows only the rows the underwater rugby designs can show (picture: *The Info Page of Each Sport*; the player list ▾ and the penalty and card lists: *The Player List (▾)* and *Score Type, Card and Sanction Lists*). The rows that belong to underwater rugby:

Row	What it puts on air
Goal	Team, scorer and game time → Goal screen (St) and Player lower third (CK).

Row	What it puts on air
2 Minutes	Team, player and the 2-minute penalty → Card screen.
Cards	Team, player and Expulsion → Card screen.
Player Intro · Substitution · Multiple Substitution	Present a player, one substitution or up to five pairs.
Team Lists · Officials	Team list (Slide = player by player), the officials.
Info Screens	Intro, Result, Announce and **Timeout**.

> **Tip** The time penalty row offers 2 Minutes; Expulsion is chosen in the Cards row.

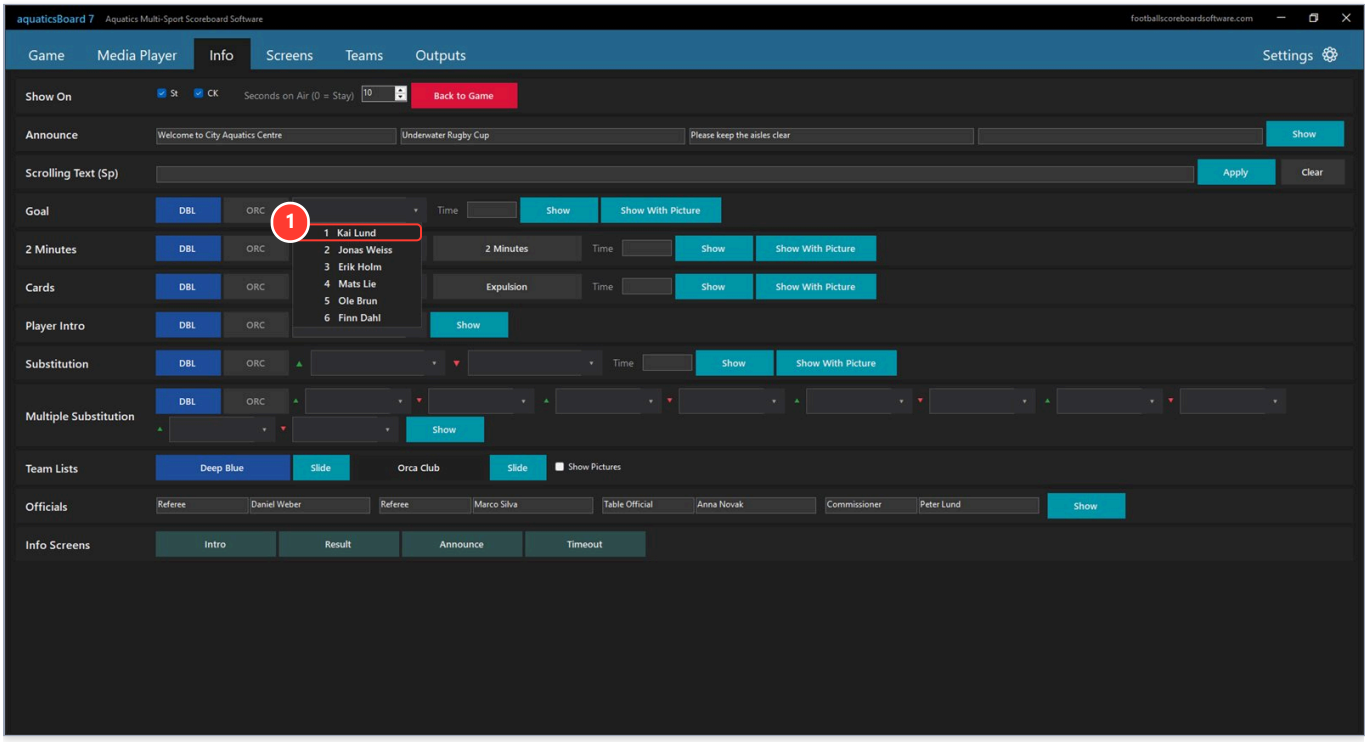


Figure 278. The player list of the Goal row (home team)

#	Control	What it does
1	**Players (number · name)**	The players of the chosen team by number. The choice fills the row; **Show** or **Show With Picture** puts the graphic on air for the Seconds on Air.

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the underwater rugby panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Start / Stop	F1
Next Period	F2
+1 Goal home / guest	Num 7 / Num 9
−1 Goal home / guest	Num 0 / Num ,

Command	Default key
Timeout home / guest	F5 / F6
End Timeout	Num 5
Undo	F12
Horn	Num 2
Shoot-out and penalty commands	none – assign the keys you need (Set Clock is not in the list: it needs a typed time)

The Underwater Rugby Boards

The St board shows logos, the game clock, the score, the half, the running penalties and the timeouts left as dots; with Player Panels on both team lists are added.

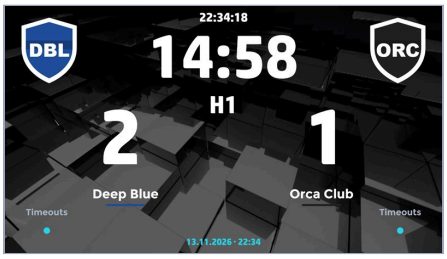


Figure 279. St – the game screen with timeouts

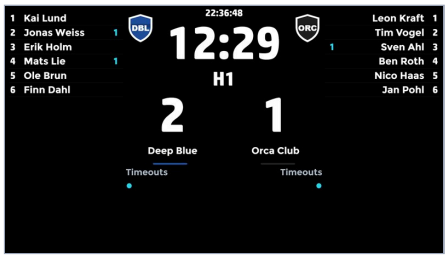


Figure 280. St – with player panels



Figure 281. Sp – with the sponsor area



Figure 282. Ad – beside the advert

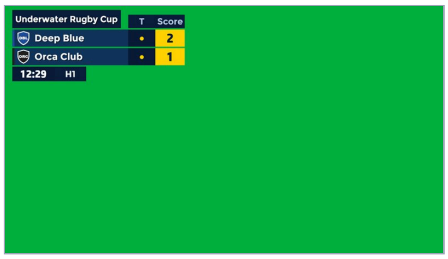


Figure 283. CK – score bug with timeout dots

Every other screen of underwater rugby — one sentence each on what it shows and how you put it on air:



Figure 284. St Announce – a title and up to three lines (welcome, next match, safety notes); a long title wraps to a second line – Show in the Announce row of the Info page, or Announce in the St row.

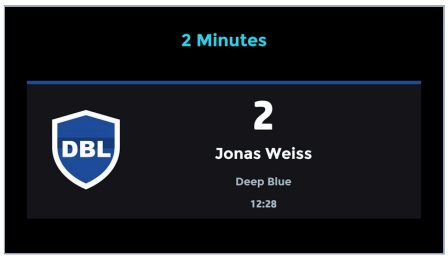


Figure 285. St Card – the player with number, photo and team under the name of the sport's own penalty or card (e.g. Exclusion 18 s, 2 Minutes, Red Card) and the game time – the Cards row (or the time penalty row) of the Info page, Show.



Figure 286. St Goal – the scorer with number, photo, team and the new score – choose team and player in the Goal row of the Info page and click Show or Show With Picture.



Figure 287. St Intro – the event, both teams with logos, venue, date and time – before the start; Intro in the St on-air row, on the Screens page or under Info Screens on the Info page.

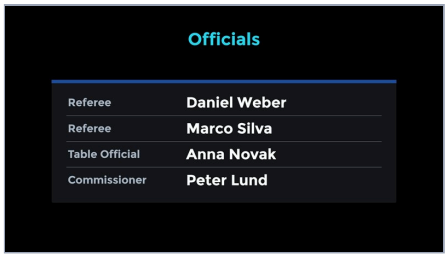


Figure 288. St Officials – referees and table officials – type them in the Officials row of the Info page and click Show.



Figure 289. St Player Intro – one player with photo, number and team – the Player Intro row of the Info page, or Slide in the Team Lists row to present the whole team one by one.

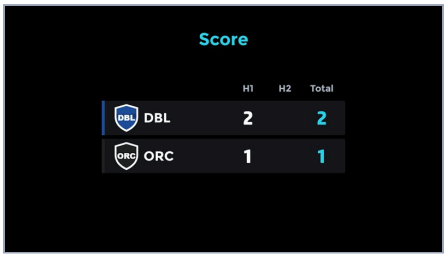


Figure 290. St Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

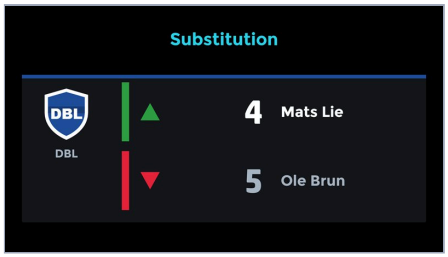


Figure 291. St Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

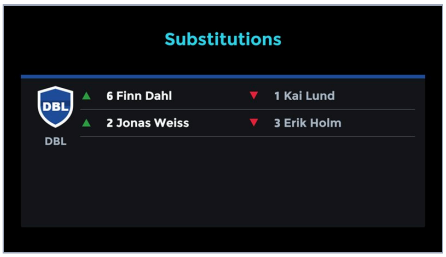


Figure 292. St Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.

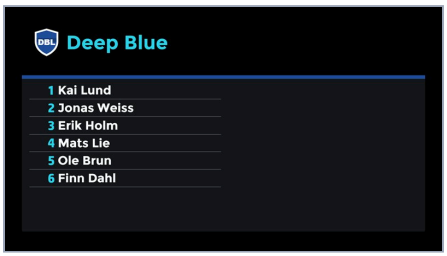


Figure 293. St Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

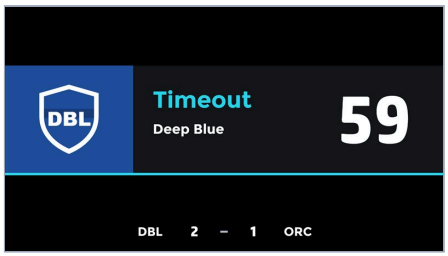


Figure 294. St Timeout – the logo and name of the team that called the timeout, the countdown and the score – click Timeout in the St row when a team takes a timeout (it is not put on air by itself).

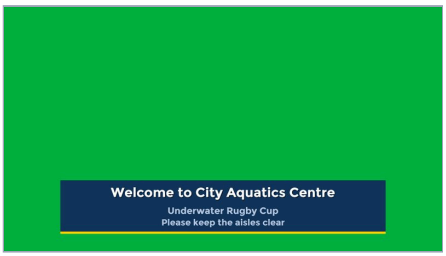


Figure 295. CK Lower Third – the announcement title and the first two lines as a lower third – Announce row of the Info page, or Lower Third in the CK row.



Figure 296. CK Officials – referees and table officials – type them in the Officials row of the Info page and click Show.



Figure 297. CK Player – goal, card or player intro as a lower third – the same Info page rows as the St screens when CK is ticked under Show On.

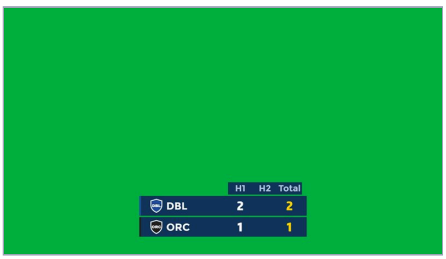


Figure 298. CK Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

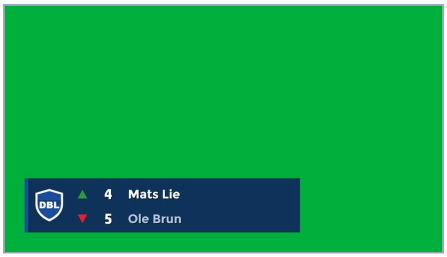


Figure 299. CK Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.



Figure 300. CK Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 301. CK Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

Remote Control (Underwater Rugby)

Sign in on a phone or tablet as described in *Remote Control*. The title bar shows aquaticsBoard 7 and the sport; the buttons carry the names of the desktop in its language. The remote builds its buttons from the commands of the Underwater Rugby panel: one column per team (two buttons per row; a long name wraps to two lines), the shared Match buttons and Match Control — on a tablet the two team columns stand side by side next to Match. Every tap is sent to aquaticsBoard 7 at once; the score card follows the desk within a fraction of a second.

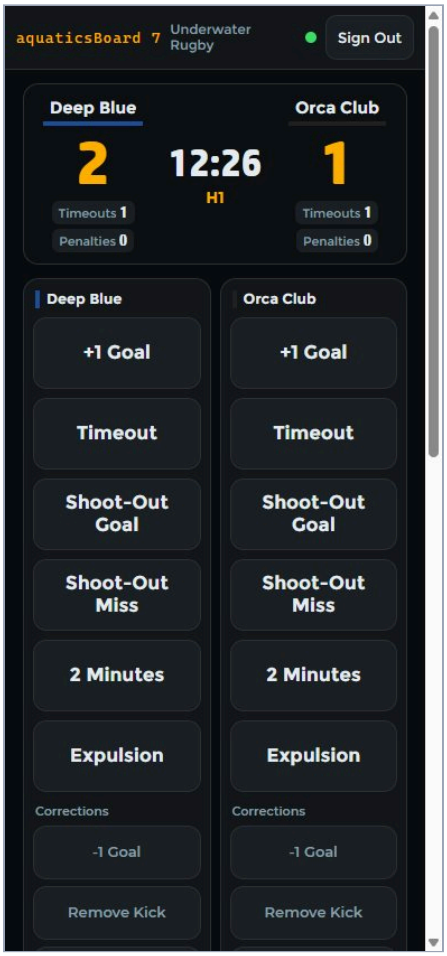


Figure 302. Phone – score card and the home team buttons

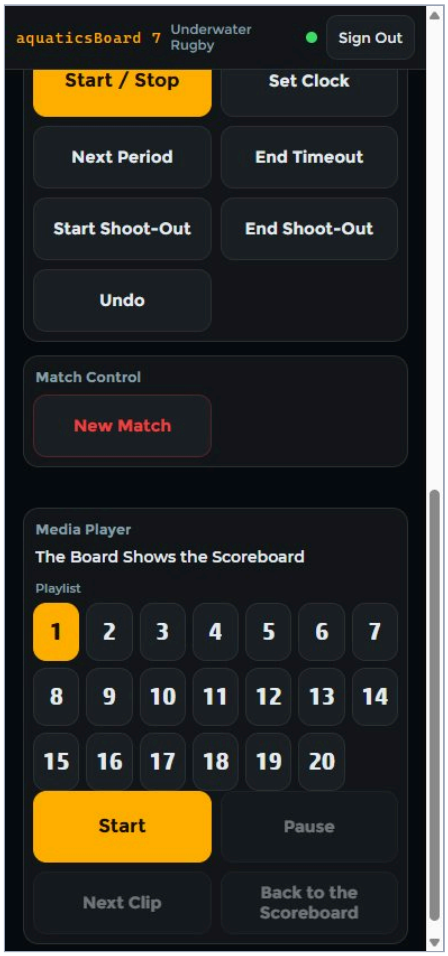


Figure 303. Phone – corrections, Match and Match Control further down

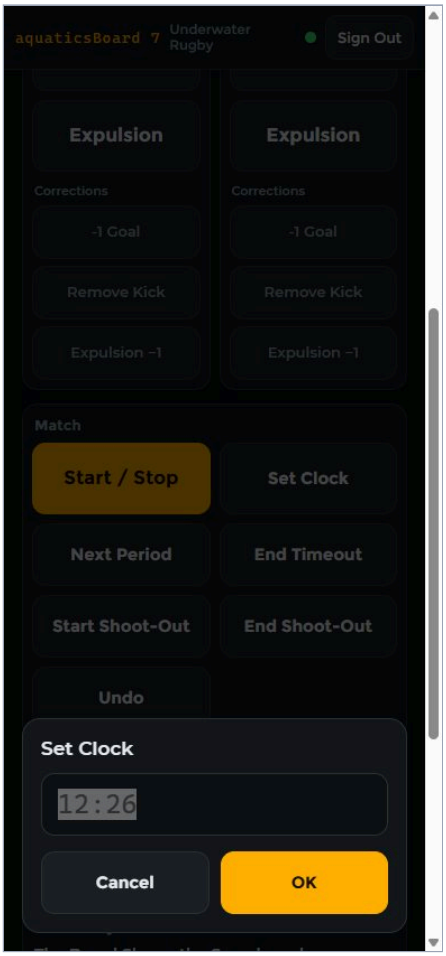


Figure 304. Phone – the Set Clock sheet

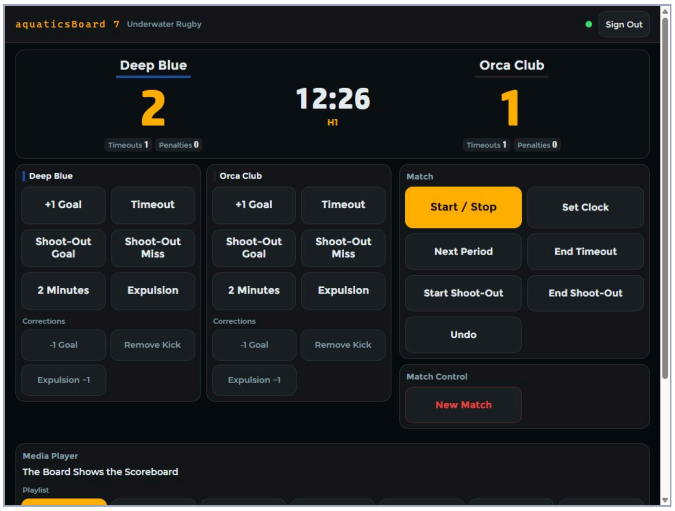


Figure 305. Tablet – both teams and the Match buttons side by side

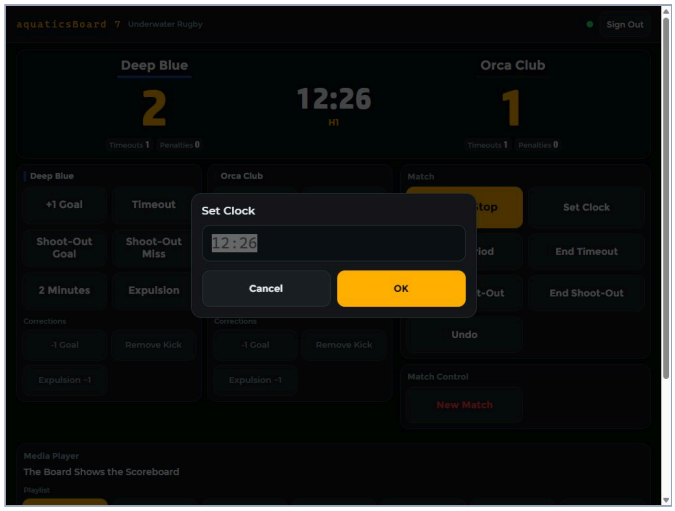


Figure 306. Tablet – Set Clock sheet over the panel

Button	Where	What it does
+1 Goal	team column	A goal for that team (the same as ↑ on the panel, without a player number).
Timeout	team column	Takes a timeout for the team: the clock stops and the countdown runs.
Shoot-Out Goal / Shoot-Out Miss	team column	Records a penalty of the shoot-out for the team (after Start Shoot-Out).
2 Minutes	team column	Starts a 2-minute penalty for the team.
Expulsion	team column	Adds an expulsion to the team's tally.
Corrections: −1 Goal, Remove Kick, Expulsion −1	team column, small buttons	Take back a goal, the last shoot-out kick or a expulsion of that team.
Start / Stop	Match	Starts or stops the game clock (amber, the biggest button).
Set Clock	Match	Opens a sheet with the clock time (mm:ss) filled in; type the new time and tap OK.
Next Period	Match	Goes on to the next period (the same as the next period button of the panel).
End Timeout	Match	Ends the running timeout early.
Start Shoot-Out / End Shoot-Out	Match	Starts and ends the penalty shoot-out (the Shoot-Out button of the panel).
Undo	Match	Takes back the last action.
New Match	Match Control	Starts a new match. The remote asks *New Match? This cannot be undone from the remote.* – Yes / No.
Score card	top	Team names with colour, score, game clock (green while running), period and the chips Timeouts (left), Penalties (the number of running timed penalties).
● / Sign Out	title bar	The dot is green while the remote is connected; Sign Out ends the session after a Yes.

> **Note** A penalty sent from the remote is booked for the team without a player number. When a command is refused (e.g. Start at 0:00) the reason appears for a few seconds at the bottom of the remote.

Underwater Rugby Scenarios

1. Type the first number into the guest number box and click **2**; repeat for the second player. Two rows count down while the clock runs.
2. The home team scores: click the home ↑. The clock stops and the older guest penalty ends; the second keeps running.
3. A penalty was entered by mistake: click the red ✕ on its row.
4. Restart with **Start**.

1. The home team calls its timeout: click the home ▶; its lamp turns red and the countdown runs. Show **Timeout** in the St row.
2. Click **Second Half** at the break: both teams get their timeout back.
3. Level at the end: click **Overtime**. The first goal ends the match; if still level, click **Shoot-Out** for the throws.

25 Underwater Hockey

Underwater hockey follows the CMAS rules as set in the preset **Underwater Hockey**:

Rule	As implemented
Periods	2 × 15:00 (H1, H2), countdown
Clock	running clock: a goal does **not** stop it (stop it by hand when the rules require)
Overtime	OT1, OT2, then SD, 5:00 each
Penalties	1, 2 and 5 minutes (up to three running per team), never ended by a goal; Total Dismissal as a tally
Shot clock	none
Timeouts	1 per team per half, 60 s
Shoot-out	available with the Shoot-Out button (5; PEN on the boards)

The Underwater Hockey Panel



Figure 307. The underwater hockey panel

#	Control	What it does
1	**Discipline**	The discipline. Click it to open the sport picker.
2	**Team name (home / guest)**	Type the team name here; Enter or leaving the box saves it. Logo and colour stripe come from the Teams page.
3	**Score**	The goals of the team (the guest's on the right).
4	**↑ / ↓ (score)**	↑ adds a goal (credited to the player in the number box), ↓ takes one back. The clock keeps running after a goal.

#	Control	What it does
5	**1 / 2 / 5 / TD (penalty buttons)**	**1**, **2**, **5** start a 1-, 2- or 5-minute penalty for the player in the number box; a goal does not end them. **TD** (tool tip *Total Dismissal*) records a total dismissal (tally); **right-click TD** takes it back.
6	**Player number box**	Type the cap / shirt number before a goal, foul or penalty, or pick it from the list below. The next action of the team is credited to that player and the box clears. Empty = the team only.
7	**Player list** ▾	Opens the team list (see *Players and the Number Box* below).
8	**Running penalties**	Up to 3 penalties of the team: player, remaining time and a red ✕ that removes exactly the penalty of that row. Penalty time only runs while the game clock runs.
9	**Game clock**	Counts down the period (tenths below one minute); green while running. **Double-click** it to set the time (m:ss or m:ss.t).
10	**Stop**	Stops the game clock (and with it the shot clock and the penalties).
11	**Start**	Starts the game clock; a running timeout ends. Refused at 0:00 — choose the next period first.
12	**Timeout**	The timeout length; during a timeout the countdown (amber). Click it to end a timeout early. A timeout also ends at zero or when the game clock starts.
13	**Timeout lamps**	One lamp per timeout of this half; red = used.
14	**▶ Timeout (home / guest)**	Takes a timeout for the team: the clock stops and the countdown starts. Hidden when the team has none left.
15	**First Half / Second Half**	Starts that half (15:00, clock stopped); the timeouts of the half are given back.
16	**Overtime 1**	Starts the first overtime (OT1 on the boards). In overtime the button reads *Overtime 2*, then *Sudden Death*: a click goes on to that period (OT2, SD).
17	**Shoot-Out**	Starts the penalty shoot-out (tool tip *Penalty Shoot-Out*; the clock cannot run during it, the boards show PEN). A row with ● **Shoot-Out Goal**, ○ **Shoot-Out Miss** and the marks per team appears above the panel; when one team can no longer be caught the match is won. Click Shoot-Out again to end the shoot-out.
18	**Set Clock**	Opens *Set Clock* (see below), the same as double-clicking the clock.
19	**Player Panels**	Switches the St game screen between the board with and without the player lists of both teams (lit = with).
20	**Undo**	Takes back the last action.
21	**St / Sp / Ad / CK rail**	Opens or closes the four outputs (lit green = open). See *The Main Window* and *Outputs*.
22	**St and CK on-air rows**	The screen each output shows now (lit amber = on air): Game, Intro, Result, Announce, Timeout for St; Game, Lower Third, Result for CK. See *On-Air Rows and Bottom Bar*.
23	**New Match**	Resets score, clock, penalties, fouls and timeouts after a confirmation; teams and team lists stay.
24	**Sport · discipline** ▾	Shows the sport and discipline. Click it to open *Choose Sport and Discipline* (see *Choosing the Sport and Discipline*).
25	**Time Settings**	Opens the period, timeout, shot clock and penalty times of this discipline (see *Time Settings* below). A ***** after the name means the times differ from the defaults.

Players and the Number Box

Goals and penalties can be credited to a player. Without a team list just type the number into the number box under the penalty buttons; with a team list (Teams page) click the chevron under the box and pick the player.

1. Type the number, e.g. `7` (up to three characters), or pick it from the list.
2. Click the action of that team: ↑ for a goal, or a penalty button.
3. The goal or penalty is stored with the player, shown in the player panels and the penalty row, and the box clears for the next action.

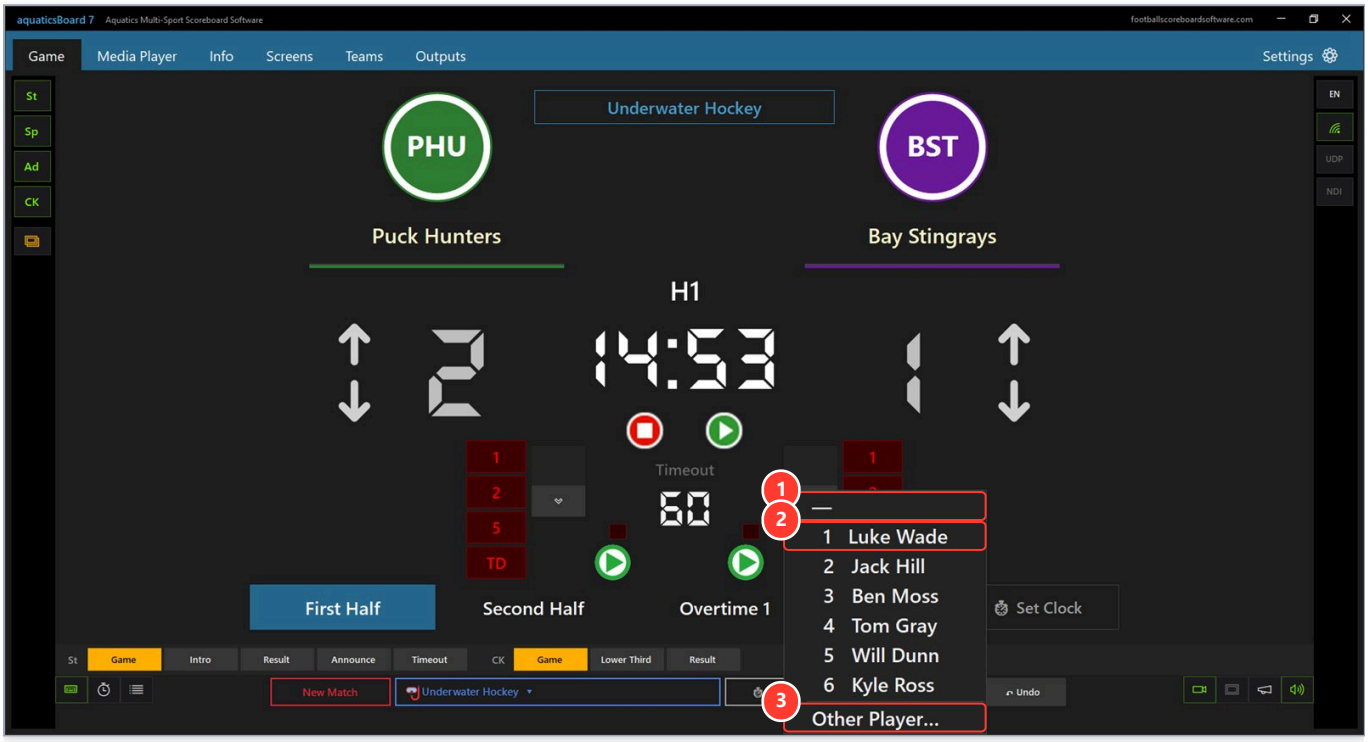


Figure 308. The player list of the home team (chevron under the number box)

#	Control	What it does
1	—	Clears the number box: the next action counts for the team only.
2	**Players (number · name)**	The players of the team list marked **Show** on the Teams page, by number. A click puts the number into the box.
3	**Other Player…**	Opens *Other Player…* for a player who is not in the list.



Figure 309. Other Player...

#	Control	What it does
1	**Number and name**	Type the number and the name, e.g. `17 John Smith`. A number alone only fills the box; with a name the player is also added to the team list.
2	**OK**	Puts the number into the number box.
3	**Cancel**	Closes without a change.

Set Clock

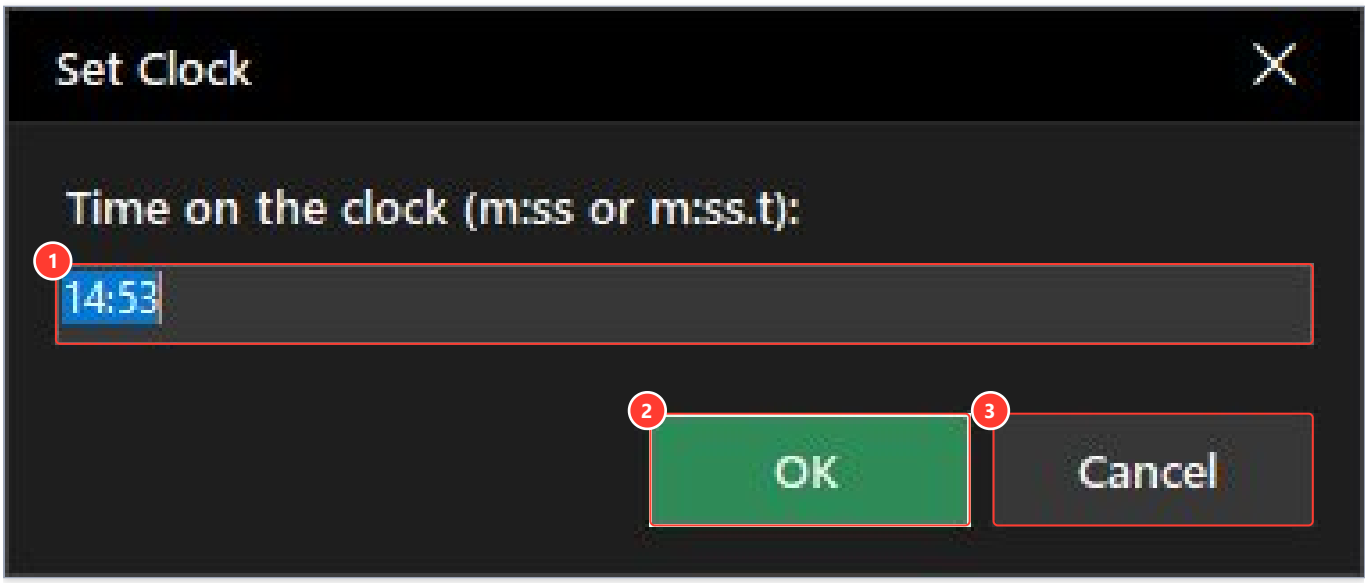


Figure 310. Set Clock (Set Clock button, or a double click on the game clock)

#	Control	What it does
1	**Time on the clock (m:ss or m:ss.t)**	Type the time the clock must show, e.g. `4:12` or `0:47.5`. The clock keeps its running state.
2	**OK**	Sets the clock; the boards and the remote follow at once.
3	**Cancel**	Leaves the clock as it is.

Time Settings

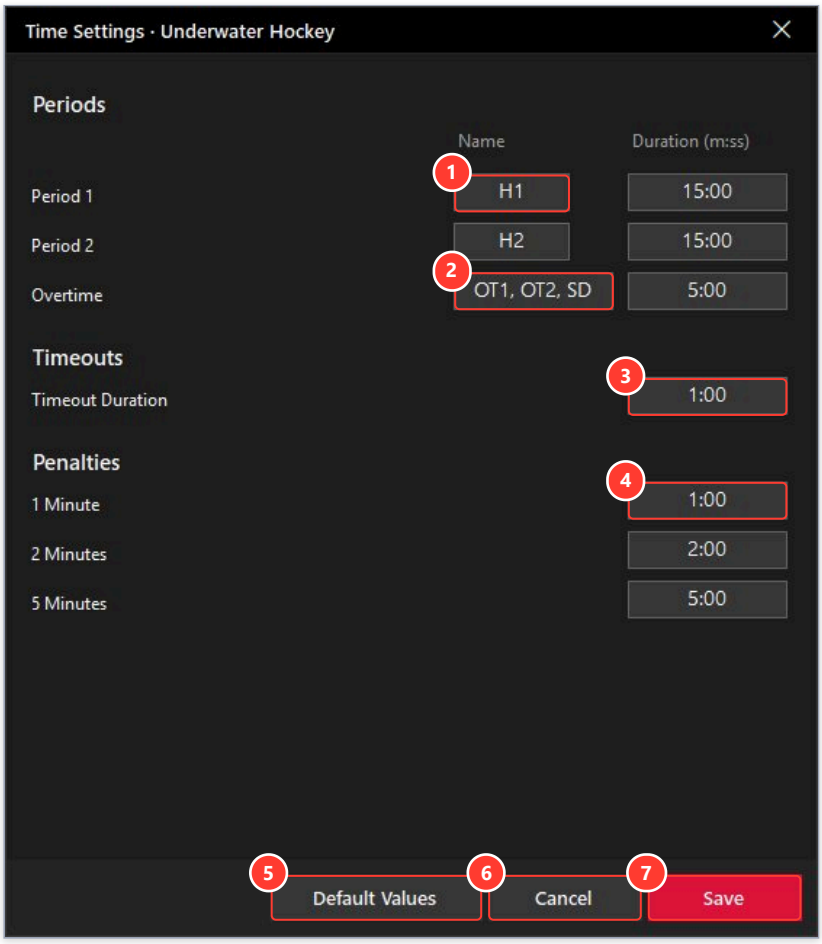


Figure 311. Time Settings of underwater hockey

#	Control	What it does
1	**Periods: Name · Duration**	Name and length of both halves.
2	**Overtime**	The names of the overtime periods (OT1, OT2, SD), separated by commas, and their length.
3	**Timeout Duration**	Length of a team timeout.
4	**Penalties: 1 / 2 / 5 Minutes**	Lengths of the three timed penalties.
5	**Default Values**	Puts the factory values of the discipline back into the window (after a confirmation).
6	**Cancel**	Closes without saving.
7	**Save**	Saves the times for this discipline; they apply to the next match (see *When the New Times Apply*). **Time Settings** * on the Game page then shows that the times differ from the defaults.

The Info Page of Underwater Hockey

The Info page shows only the rows the underwater hockey designs can show (picture: *The Info Page of Each Sport*; the player list ▾ and the penalty and card lists: *The Player List (▾)* and *Score Type, Card and Sanction Lists*). The rows that belong to underwater hockey:

Row	What it puts on air
Goal	Team, scorer and game time → Goal screen (St) and Player lower third (CK).
Time Penalties	Team, player and the penalty (1, 2 or 5 minutes) → Card screen.
Cards	Team, player and Total Dismissal → Card screen.
Player Intro · Substitution · Multiple Substitution	Present a player, one substitution or up to five pairs.
Team Lists · Officials	Team list (Slide = player by player), the officials.
Info Screens	Intro, Result, Announce and **Timeout**.

> **Tip** The time penalty row offers 1 Minute, 2 Minutes and 5 Minutes; Total Dismissal is chosen in the Cards row.

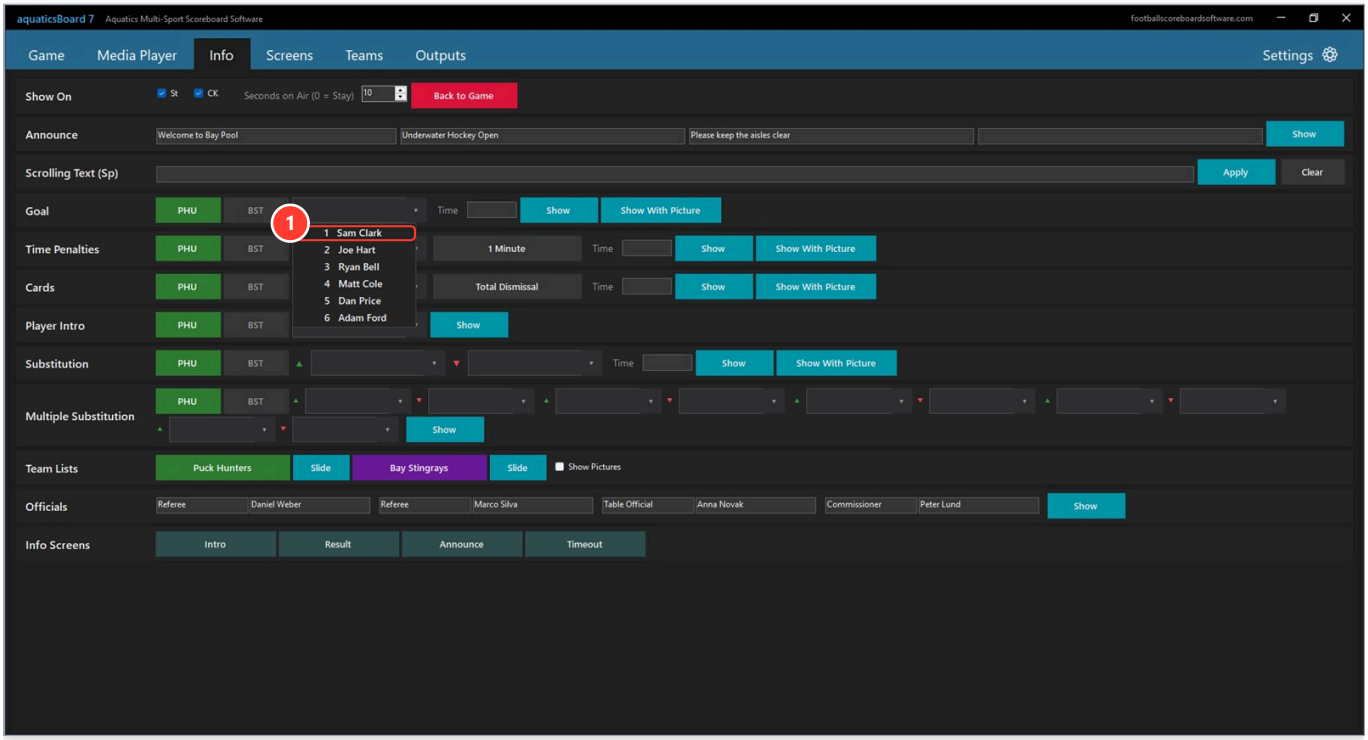


Figure 312. The player list of the Goal row (home team)

#	Control	What it does
1	**Players (number · name)**	The players of the chosen team by number. The choice fills the row; **Show** or **Show With Picture** puts the graphic on air for the Seconds on Air.

Keyboard Shortcuts

The keyboard shortcut list follows the sport: it lists every command of the underwater hockey panel (the picture of this list is in *Keyboard Shortcuts → The Actions of Each Sport*; how to assign keys, Global Shortcuts On and Default Keys are explained there). The factory keys:

Command	Default key
Start / Stop	F1
Next Period	F2
+1 Goal home / guest	Num 7 / Num 9

Command	Default key
–1 Goal home / guest	Num 0 / Num ,
Timeout home / guest	F5 / F6
End Timeout	Num 5
Undo	F12
Horn	Num 2
Shoot-out and penalty commands	none – assign the keys you need (Set Clock is not in the list: it needs a typed time)

The Underwater Hockey Boards

The St board shows logos, the game clock, the score, the half, the running penalties and the timeouts left as dots; with Player Panels on both team lists are added with the goals.

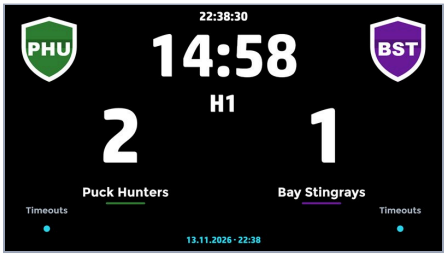


Figure 313. St – the game screen

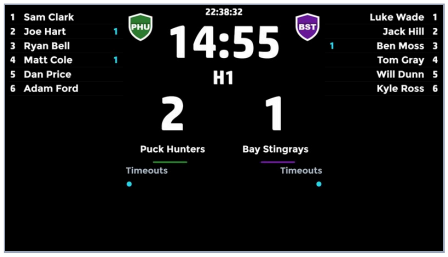


Figure 314. St – with player panels



Figure 315. Sp – with the sponsor area



Figure 316. Ad – beside the advert

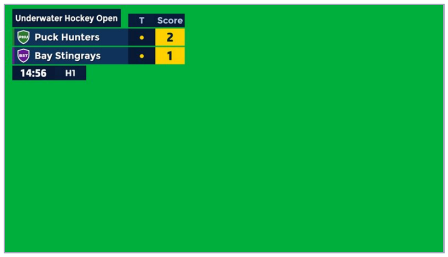


Figure 317. CK – score bug for broadcast

Every other screen of underwater hockey — one sentence each on what it shows and how you put it on air:

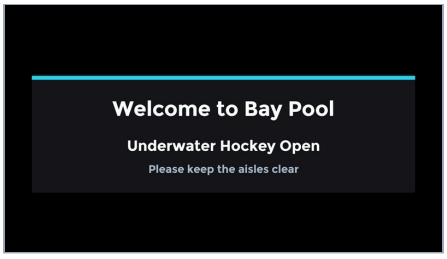


Figure 318. St Announce – a title and up to three lines (welcome, next match, safety notes); a long title wraps to a second line – Show in the Announce row of the Info page, or Announce in the St row.

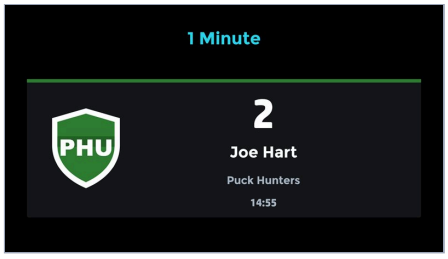


Figure 319. St Card – the player with number, photo and team under the name of the sport's own penalty or card (e.g. Exclusion 18 s, 2 Minutes, Red Card) and the game time – the Cards row (or the time penalty row) of the Info page, Show.

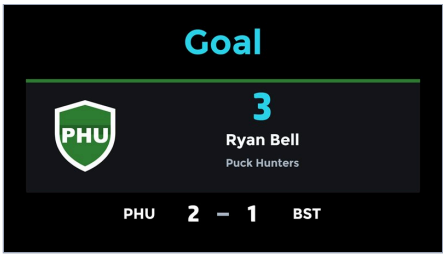


Figure 320. St Goal – the scorer with number, photo, team and the new score – choose team and player in the Goal row of the Info page and click Show or Show With Picture.



Figure 321. St Intro – the event, both teams with logos, venue, date and time – before the start; Intro in the St on-air row, on the Screens page or under Info Screens on the Info page.

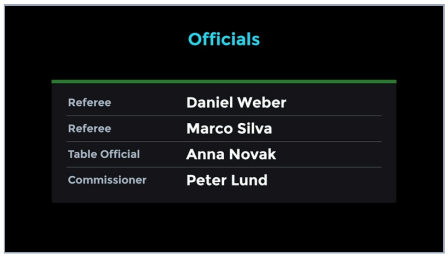


Figure 322. St Officials – referees and table officials – type them in the Officials row of the Info page and click Show.



Figure 323. St Player Intro – one player with photo, number and team – the Player Intro row of the Info page, or Slide in the Team Lists row to present the whole team one by one.

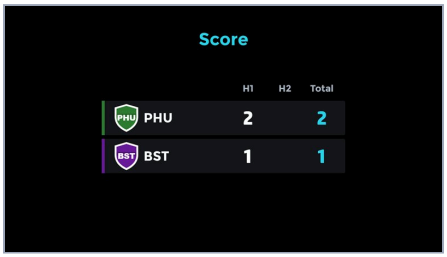


Figure 324. St Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).

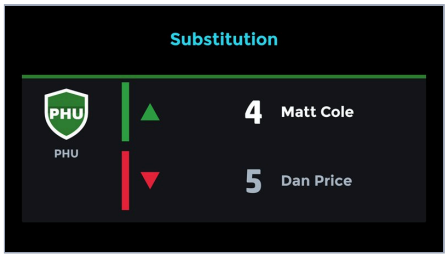


Figure 325. St Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.

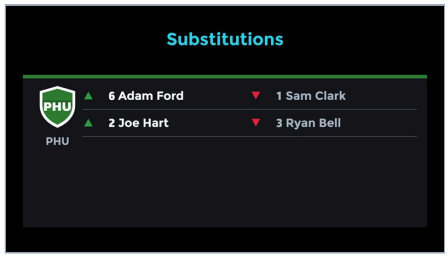


Figure 326. St Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 327. St Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

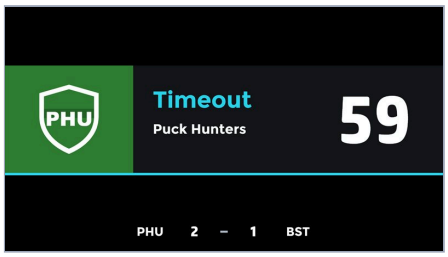


Figure 328. St Timeout – the logo and name of the team that called the timeout, the countdown and the score – click Timeout in the St row when a team takes a timeout (it is not put on air by itself).

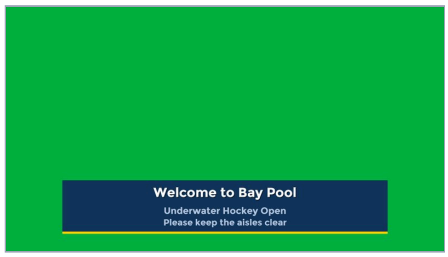


Figure 329. CK Lower Third – the announcement title and the first two lines as a lower third – Announce row of the Info page, or Lower Third in the CK row.



Figure 330. CK Officials – referees and table officials – type them in the Officials row of the Info page and click Show.



Figure 331. CK Player – goal, card or player intro as a lower third – the same Info page rows as the St screens when CK is ticked under Show On.

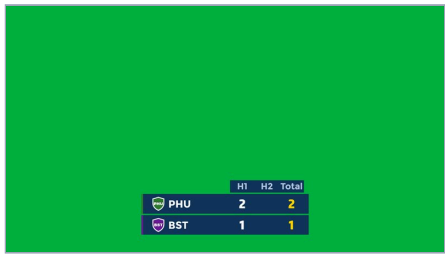


Figure 332. CK Result – the score per period and the total – at the breaks and after the final whistle; Result in the St row or under Info Screens (Info Screens also puts the CK Result on air).



Figure 333. CK Substitution – the player coming in (▲) and going out (▼) – the Substitution row of the Info page.



Figure 334. CK Multiple Substitution – up to five pairs of one team at once – the Multiple Substitution row of the Info page.



Figure 335. CK Team List – the team list with the coach (the rows are sized to the number of players) – the team button in the Team Lists row of the Info page.

Remote Control (Underwater Hockey)

Sign in on a phone or tablet as described in *Remote Control*. The title bar shows aquaticsBoard 7 and the sport; the buttons carry the names of the desktop in its language. The remote builds its buttons from the commands of the Underwater Hockey panel: one column per team (two buttons per row; a long name wraps to two lines), the shared Match buttons and Match Control — on a tablet the two team columns stand side by side next to Match. Every tap is sent to aquaticsBoard 7 at once; the score card follows the desk within a fraction of a second.

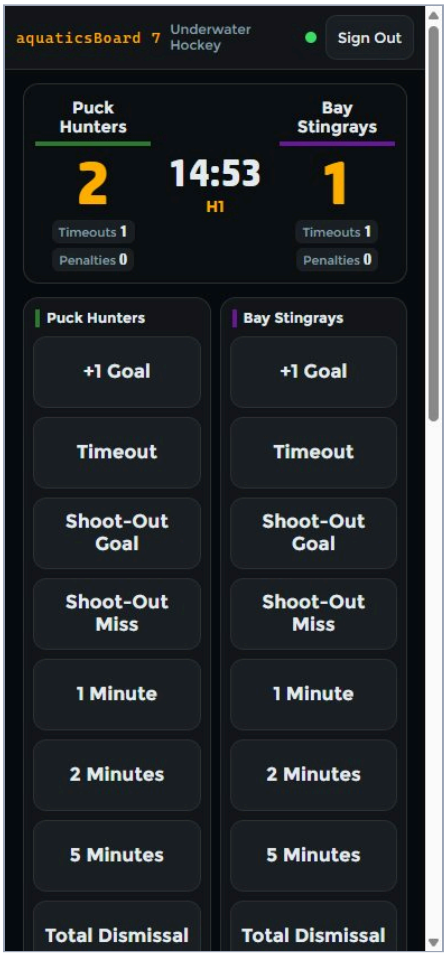


Figure 336. Phone – score card and the home team buttons

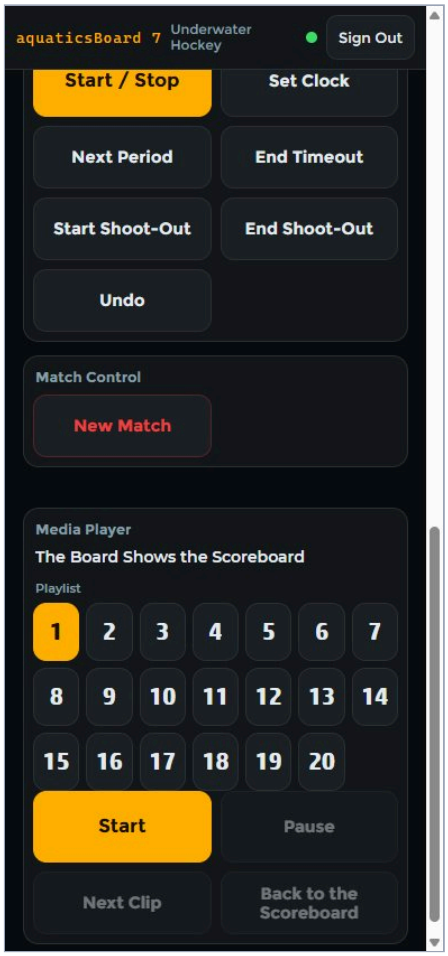


Figure 337. Phone – corrections, Match and Match Control further down

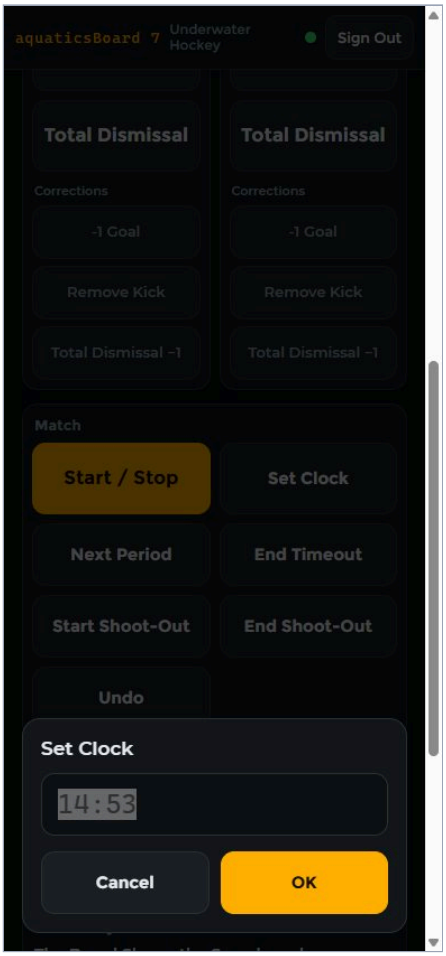


Figure 338. Phone – the Set Clock sheet

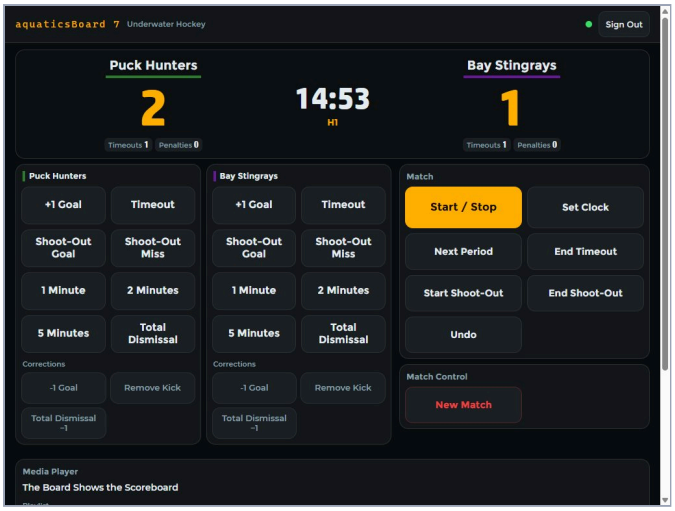


Figure 339. Tablet – both teams and the Match buttons side by side

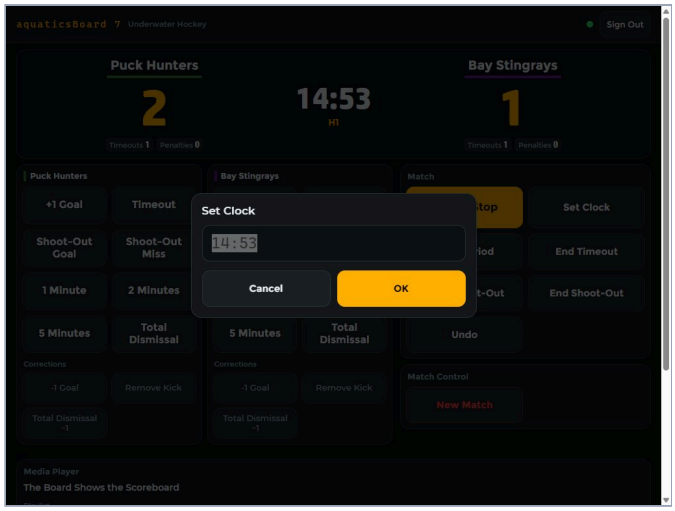


Figure 340. Tablet – Set Clock sheet over the panel

Button	Where	What it does
+1 Goal	team column	A goal for that team (the same as ↑ on the panel, without a player number).
Timeout	team column	Takes a timeout for the team: the clock stops and the countdown runs.
Shoot-Out Goal / Shoot-Out Miss	team column	Records a penalty of the shoot-out for the team (after Start Shoot-Out).
1 Minute · 2 Minutes · 5 Minutes	team column	Starts that timed penalty for the team.
Total Dismissal	team column	Adds a dismissal to the team's tally.
Corrections: −1 Goal, Remove Kick, Total Dismissal −1	team column, small buttons	Take back a goal, the last shoot-out kick or a total dismissal of that team.
Start / Stop	Match	Starts or stops the game clock (amber, the biggest button).
Set Clock	Match	Opens a sheet with the clock time (mm:ss) filled in; type the new time and tap OK.
Next Period	Match	Goes on to the next period (the same as the next period button of the panel).
End Timeout	Match	Ends the running timeout early.
Start Shoot-Out / End Shoot-Out	Match	Starts and ends the penalty shoot-out (the Shoot-Out button of the panel).
Undo	Match	Takes back the last action.
New Match	Match Control	Starts a new match. The remote asks *New Match? This cannot be undone from the remote.* – Yes / No.
Score card	top	Team names with colour, score, game clock (green while running), period and the chips Timeouts (left), Penalties (the number of running timed penalties).
● / Sign Out	title bar	The dot is green while the remote is connected; Sign Out ends the session after a Yes.

> **Note** A penalty sent from the remote is booked for the team without a player number. When a command is refused (e.g. Start at 0:00) the reason appears for a few seconds at the bottom of the remote.

Underwater Hockey Scenarios

1. A goal at 5:12: click ↑ for the team — the clock keeps running.
2. A 5-minute penalty: type the number and click **5**; it keeps running after goals.
3. In the last two minutes click **Stop** at each stoppage the referee signals and **Start** on the restart.
4. If the clock must be corrected, double-click it (or **Set Clock**) and type the time, e.g. `1:47.5`.

1. Click **Overtime 1**; the clock shows 5:00. Run it with **Start** / **Stop**.
2. Still level: click the overtime button again (now **Overtime 2**) for OT2, then once more (**Sudden Death**) for SD.
3. If a shoot-out is needed, click **Shoot-Out** and record the shots.

26 Usage Scenarios

1. Choose **Swimming · 50 m Pool (LCM), 8 Lanes**. Check meet name and venue on the Teams page and click **Save Competition**.
2. Open **St** on the LED wall and show **Intro** under Board while swimmers arrive.
3. Click **Next Heat ▶** for heat 1, **Live Board**, then **Start** at the signal. Click **Split** and **Finish** per lane as the timekeepers call them.
4. When all have touched, check the amber warnings, correct with the lane menu → **Official Time…** or **DQ**, and click **Approve** when the referee signs.
5. Repeat with **Next Heat ▶** for every heat. After the last heat show **Result** for the event result with the qualifiers (Q).
6. In the evening select the event in the program and click **Build the Next Round**: the final lanes are filled from the heat results. Call the final and race it the same way.

1. Call the heat with **Call the Selected Heat**.
2. Either click **Start** at the whistle and **Finish** per lane at each touch, or leave the desk out of the race.
3. Select each lane row and click **Enter Results by Hand**, type the coach's time, e.g. `1:05.32`. On a heat that was never started the desk asks once to close the heat for hand timing; answer **Yes**.
4. Mark absent swimmers with the lane menu → **DNS**.
5. Click **Approve** and show **Result** on the board.

1. Choose **Diving · Women's 3m Springboard** in the sport picker.
2. Show **Intro**, then **Live Board** under Info Screens when the first diver walks to the board.
3. Type the seven awards with the keypad (each whole award moves on to the next judge), apply a referee penalty if needed and click **Publish**.
4. Click **Next Diver ▶**; the standings on the right update after each dive.
5. A wrong award after publishing: **Correct**, fix the judge, **Publish**.
6. After each round show **Result** (standings after the round); after the last round leave it on air.

1. Choose **Water Polo**. Enter both teams with their cap lists on the Teams page (or type numbers by hand during the game).
2. Open St and CK; check the shot clock and the exclusion length under **Time Settings**.
3. Play the match: **Start** / **Stop**, ↑ for goals with the cap number, **0:18** for exclusions, ▶ for timeouts, **28** / **18** for the shot clock.
4. Use **1st Period** … **4th Period** at each break; show **Result** at the end, and **Shoot-Out** for a shoot-out if a winner is required.
5. For the next match change the teams on the Teams page and click **New Match**.

1. Run the swimming part on the race desk as above; the results are saved with the competition.
2. Click the sport button in the bottom row and choose **Canoe Polo**. The panel changes to the canoe polo panel; the boards switch to the canoe polo design.
3. After the match choose **Underwater Rugby**; team lists and time settings are kept per sport, so each sport opens as you left it.
4. Back to swimming the next day: the meet is still there with every approved heat.

1. Open **CK** on the left rail and send it to the mixer by NDI (see *Outputs* and *NDI*).

2. Key out the green background in the mixer (with NDI the transparency is sent along).
3. Swimming: CK shows the lane list with the race clock; diving: a lower third with diver, dive and awards; team sports: a score bug with clock and period.
4. Use the CK buttons of the on-air row: **Game** during play, **Lower Third** for names and messages, **Result** at the end. Event graphics (goal, card, team list) come from the Info page with **CK** ticked.

1. Turn the remote on in the tool strip and sign in on the tablet (see *Remote Control*).
2. The pool-side operator types the awards on the tablet keypad and taps **Publish**; the desk shows the same dive at once.
3. The desk operator runs the screens (Intro, Live Board, Result) and the Info page announcements.
4. Corrections can be made on either side: **Correct** on the tablet or the desk.

27 Aquatics Quick Reference

Task	Sport	How
Call a heat	Swimming	select it in Program → Call the Selected Heat; or Next Heat ▶ / ◀ Previous Heat (remote: tap the heat → OK)
Start / recall / end a race	Swimming	Start · Recall the Start · End Race
Split / touch	Swimming	Split / Finish in the lane row (desk or remote)
Time, DQ, DNS, DNF	Swimming	right-click the lane row (remote: tap the lane)
Paper times	Swimming	Enter Results by Hand → Yes to close a heat that never started
Official result	Swimming	Approve (Unlock to correct); ⚠ Check Lanes names lanes to check first
Seed / next round / swim-off	Swimming	Seed Heats · Build the Next Round · Create the Swim-Off (remote)
Award	Diving	keypad 0–10 (moves on to the next judge); ½ and ⌫ act on the award just typed; a judge box selects that judge
Penalty	Diving	Failed Dive · Re-Start −2 · Max 2 · Max 4½ · No Penalty
Publish / correct	Diving	Publish (Publish Anyway? with an award missing) · Correct
Other dive	Diving	Change Dive… (before awards)
Next diver	Diving	Next Diver ▶ (after publishing)
Clock	team sports	Start / Stop (F1); double-click the clock or Set Clock
Goal	team sports	↑ (↓ takes back); number box first for the scorer; Num 7 / Num 9
Exclusion / penalty	team sports	number box → penalty button; ✕ removes a running one
Card tally	team sports	R (canoe polo: ER, underwater rugby: Expulsion, underwater hockey: TD); right-click takes one back
Shot clock	water polo, canoe polo	28 / 18 (60); click the digits to run, double-click to type a value; ∅ sets it to 0
Timeout	water polo, underwater rugby / hockey	▶ under the lamps; click the countdown to end; Timeout screen from the St row
Period / overtime	team sports	period buttons; Extra Time / Overtime buttons; Shoot-Out for the shoot-out
Event graphics	team sports	Info page rows → Show / Show With Picture
Refused action	all	read the red message under the bottom row

Status word	Meaning
Scheduled · On the Blocks · Racing · Unofficial · Official	the five states of a swimming heat
Waiting · Scoring · Published	the three states of a dive

28 Troubleshooting

Problem	What to do
A board does not appear on the second monitor.	Check that Windows uses *Extend* (not Duplicate), then choose the monitor on the Outputs page and tick **Show**. More in *Sending the Board to the LED Screen → Troubleshooting the LED Output*.
The board is too small or cut off on an LED wall.	Untick **Full Screen** and enter the exact Left / Top / Width / Height of the LED controller's area on that monitor (see *LED Sender Card*).
I have to place the board again at every start.	No: the Outputs page saves everything at once and the board opens at its place by itself. If it does not, check that the LED device is switched on before or soon after the program starts, and that Windows still uses *Extend*.
A clip of the Media Player does not play.	The St output must be open. A red file name means the file was moved or deleted: add it again. Some video formats need the matching Windows codec; MP4 (H.264) always works.
A keyboard shortcut does nothing.	Check **Global Shortcuts On** in the keyboard shortcut editor (the keyboard icon at the bottom left is green when on), switch `NumLock` on, and make sure the key is assigned for the **current sport**. Numpad keys do not score while you type in a text box of the program.
The phone cannot open the remote page.	Same network as the PC (not mobile data, not a guest Wi-Fi)? Settings shows **Running**? Allow TCP 1907 in the Windows firewall. If the status says *Not running*, the port is used by another program: choose another port and click Apply.
The PIN is refused or the pad is locked.	After five wrong PINs the device is locked for 30 s, then longer (up to 15 minutes). Wait for the countdown; check the PIN on the Settings page.
The remote shows a red dot or "No Connection to the Scoreboard".	The phone lost the Wi-Fi or the PC's server stopped. It reconnects by itself; check the Wi-Fi and the remote button on the right strip (green = running).
NDI source is missing in vMix / OBS.	The output must be open (**Show**) and **NDI** ticked. The NDI column shows the frame rate or an error. PC and receiver must be in the same network; allow the program in the firewall.
CK shows green in the vision mixer.	Use a chroma keyer on the green, or use the NDI source, which already carries transparency.
The Sp or Ad board still shows sample pictures.	Add your own files on the strip's tab of the Sp / Ad Media dialog (or copy them into *data\media\sponsor*, *ad*, *banner1*, *banner2* and click **Reload**).
A video does not appear in a scrolling strip.	Scroll Images and Images + Text use pictures only. Use Slide (or Playlist in the main area) for videos.
The scrolling text of the Info page does not appear.	Click **Apply** after typing. Look in the right place: with *Band Above the Strip* it runs in the design's band, with *Inside the Strip* it replaces the strip content. The Sp board must be open.
The Ad main area is black in Camera mode.	Windows must see a camera or capture device that is not used by another program. Choose Playlist to go back to the adverts.
The Ad banners do not appear.	Tick **Visible** for the banner on the Ad Layout tab; check its size (5–50 %).
The Info page Show button does nothing on CK.	Tick **CK** under Show On, and open the CK output. A graphic is only shown when the output's design has that screen.

Problem	What to do
The camera, NDI or capture picture stays black.	Video Sources: click **Start**, check the Preview, then **Show**; the CK or Ad board must be open. A camera used by another program cannot be opened; for NDI click ↺ to search again.
The new times are not used.	Times apply to a new match. After saving, answer **Yes** to start a new match, or start one with **New Match**.
Team names or the team list changes do not appear.	Click **Apply** on the Teams page – nothing is saved before.
The language did not change.	The language is used after a restart of the program.
The program closed unexpectedly.	Start it again and answer **Yes** to *Restore the last match?*. The match continues with the clock stopped; check the clock and start it again.

Every start, error and network event is written to the log file of the day in *data\logs*; send it with a problem report.

29 Files and Folders

All your data lives in the *data* folder inside the program folder. To move aquaticsBoard 7 to another PC, or to keep a backup, copy the whole *data* folder.

Folder / file	Content
data\config\settings.json	Language, remote control (port, PIN), console and UDP settings, sound on / off, last sport and discipline.
data\config\outputs.json	Per output: shown, monitor (number and Windows name), full screen, window position, NDI, player panels; the design of each output per sport; player panel columns; background video / picture on or off; the Sp / Ad Media settings (strip modes, Ad layout, banners, scroll texts).
data\config\inputs.json	The Video Sources settings of the CK and Ad boards (camera, format, NDI source, capture area, display mode).
data\media\playlists	The Media Player: playlist01.json … playlist20.json (the clips are referenced where they are), urls.json (the URL list) and player.json (display mode, sound, return, image play duration).
data\config\hotkeys.json	Keyboard shortcuts per sport and the Global Shortcuts On switch.
data\config\<sport>\setup.json	Event, venue, teams, colours, logos, team lists, officials of a sport (the competition for swimming and diving).
data\config\<sport>\rules\<discipline>.json	Your own Time Settings of a discipline (only the values that differ from the factory values).
data\config\running.json	Points to the journal of the running match; used to offer the restore after an unexpected end.
data\designs	Your own board designs, per sport. The factory masters are in the program folder and are never changed.
data\logos	Team logos chosen on the Teams page.
data\media\sponsor	Pictures and videos of the Sp sponsor strip.
data\media\ad	Pictures and videos of the main area of the Ad board.
data\media\banner1, *data\media\banner2*	Pictures of the two Ad banners (empty: the sponsor pictures are used).
data\media\background	Background video and picture of the St, Sp and Ad boards.
data\media\players	Player photos chosen in the Photo column of the Teams page (copies of your files).
data\sounds	Your own sounds (01.wav … 05.wav) replace the shipped ones.
data\matches	One journal file per match (every command with its time); used to restore a match after an unexpected end.
data\logs	One log file per day.
data\webview2	Working files of the board windows (browser cache). Safe to delete while the program is closed.

> **Note** Edit the files only while the program is closed. If a settings file cannot be read, the program starts with default values and keeps the damaged file as *.bad*.